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SKATER 67

PRIME

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dumas boats

verall size of the huge model

Bob Hinz at work on the flight deck.

enthusiasts and
museum visitors annually
all the distractions, the
accomplished a lot and were
plan future progress.

In February 1990, Hinz was
by an anxiety attack. On
months remained before the
to be completed, and although
thing was progressing smo
just wasn't happening fast
Hinz put in a call for help to
who packed his long, uns
to frigid Hibbing for two
intensive modeling. W
Sweeper was "modeler's
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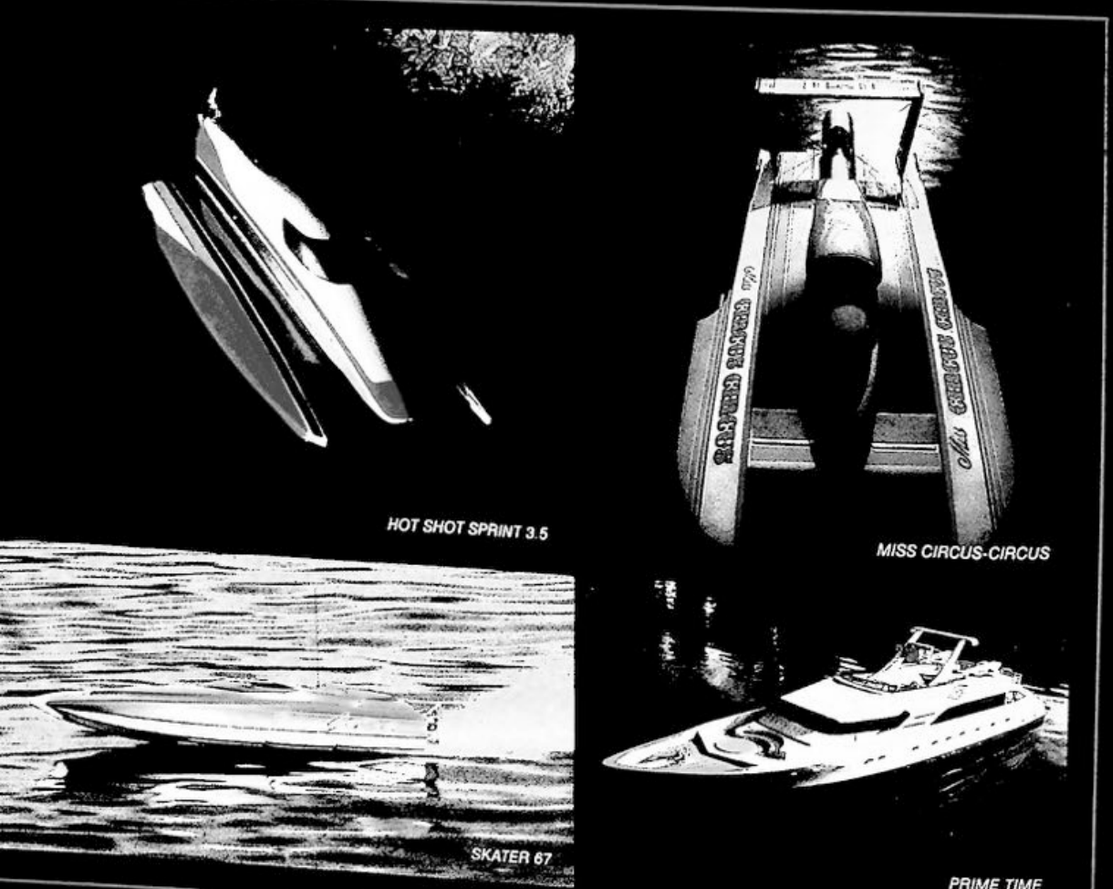

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FALL 1990
VOLUME 4, NUMBER 13

CORPORATE OFFICE:
898 WEST SIXTEENTH STREET
NEWPORT BEACH, CA 92663
714/ 645-8830

COVER: Duane Brown's MRP Fast Electric Tunnel Outboard Raceboat streaks across a smooth lake in Marysville, Washington. Top insert shows R.K. Stevens' 85-foot Harbor Tug, built from the construction article in our premier Summer 1987 issue, using the full-scale plans available. A beautiful job of scratch building. Bottom insert is a model built from this issue's construction article for a Jersey Coast Dragger, full-size plans available. Unfortunately, it is a mystery photo, as it became seperated from the letter with which it was sent to us. The owner has a free subscription coming when we receive his indentification!

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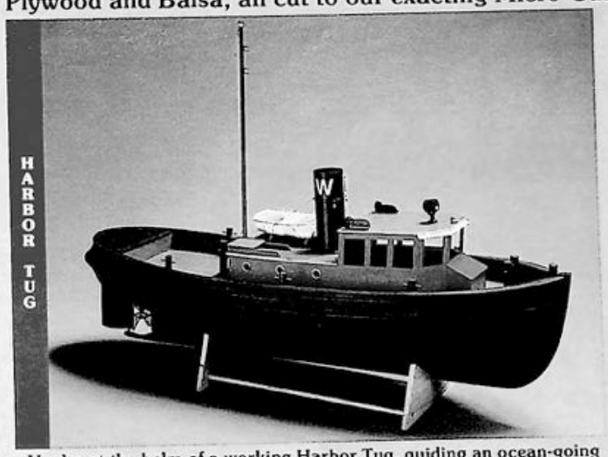

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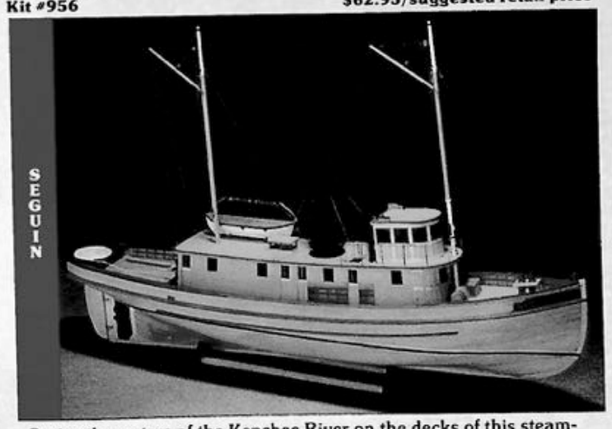

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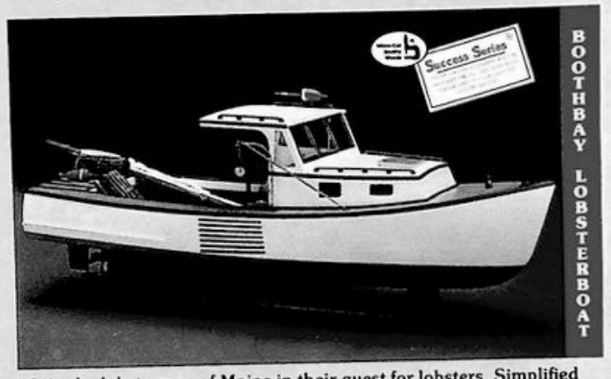

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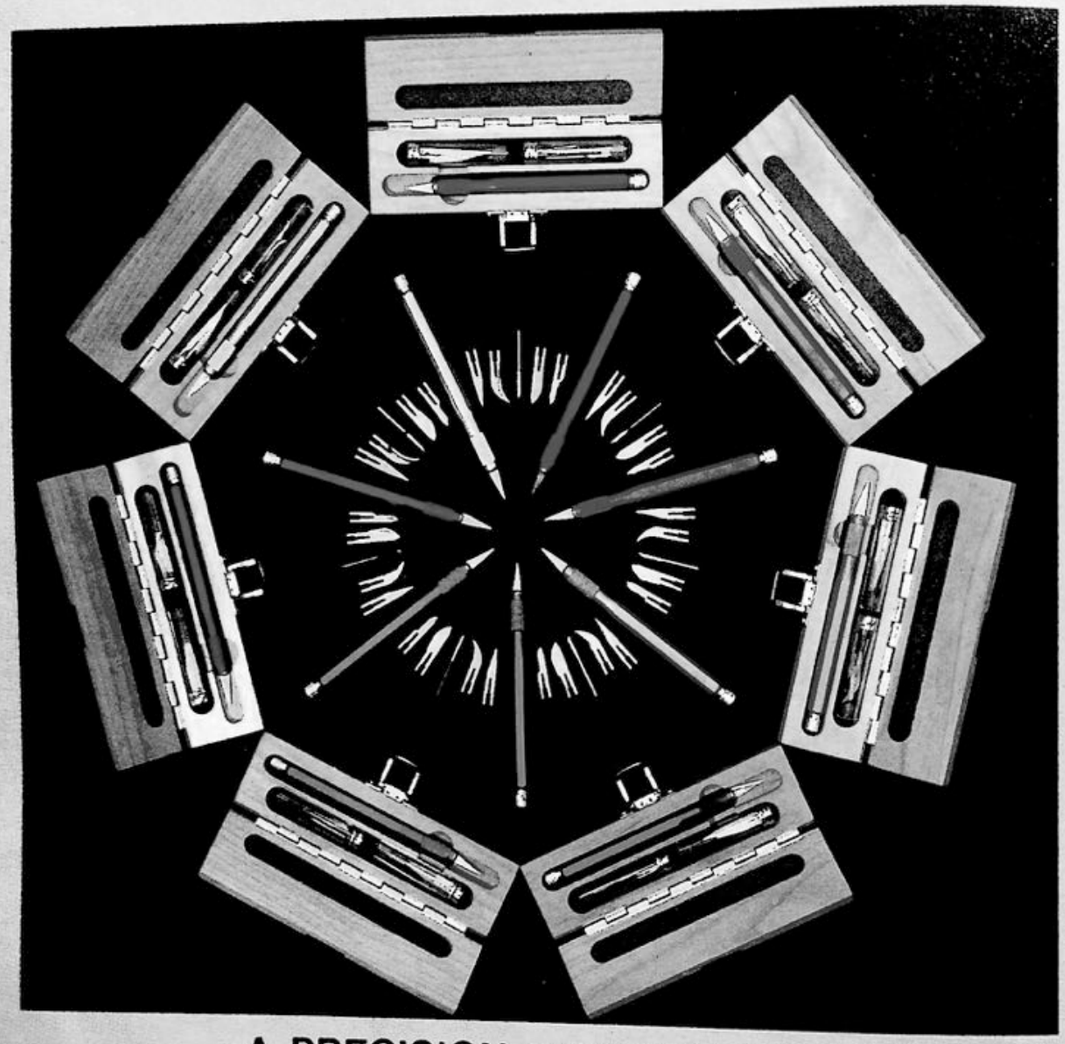

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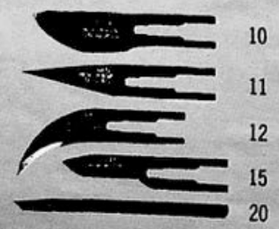

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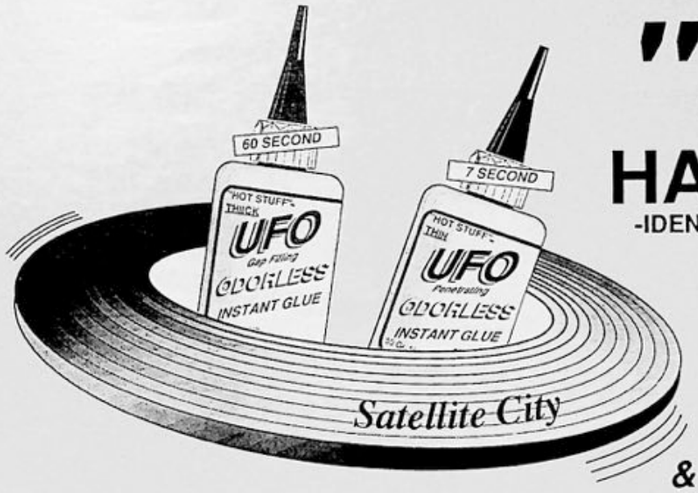

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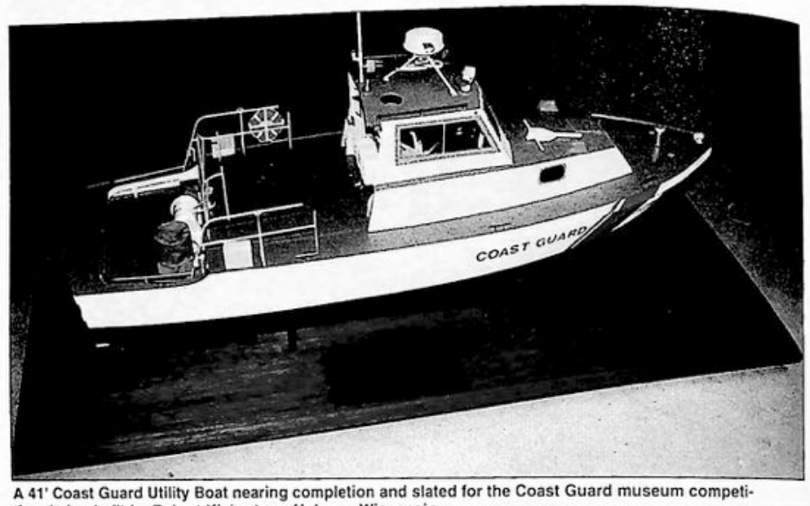
CAP'N'S LOG

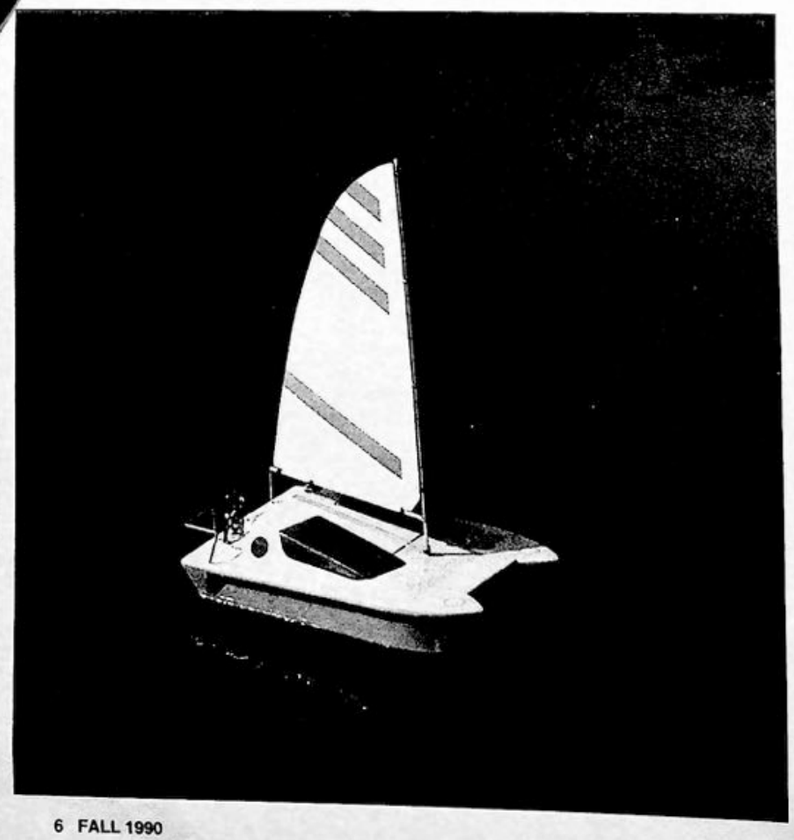
BY BILL NORTHROP

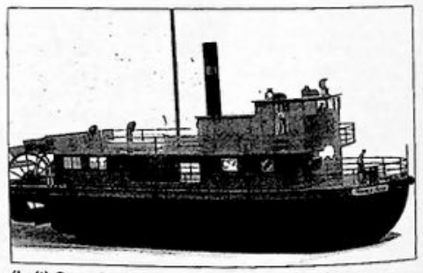
Sooner or later a magazine publishes material to which some readers take exception. Whether done intentionally or not, the result is that interesting and enlightening letters from readers are generated, primarilly from those who are the ones who take exception... it seems to be human nature that those who agree with the material, being satisfied, are content to sit back and watch the fun. It has been suggested, in a letter, that we have a Letters to the Editor department. Perhaps now that we have been publishing *U.S Boat & Ship Modeler* for three years, and readers have pretty well determined the directions we are taking, such a column or department is warranted... not just for controversial matters, but anything of interest. We'll title it "Mail Call," reminiscent of the three and a half years we spent in the U.S. Navy during WW-II, and one of the better moments of that daily routine. For this issue, just to get things started, we'll include it toward the end of this column, "Cap'n's Log."



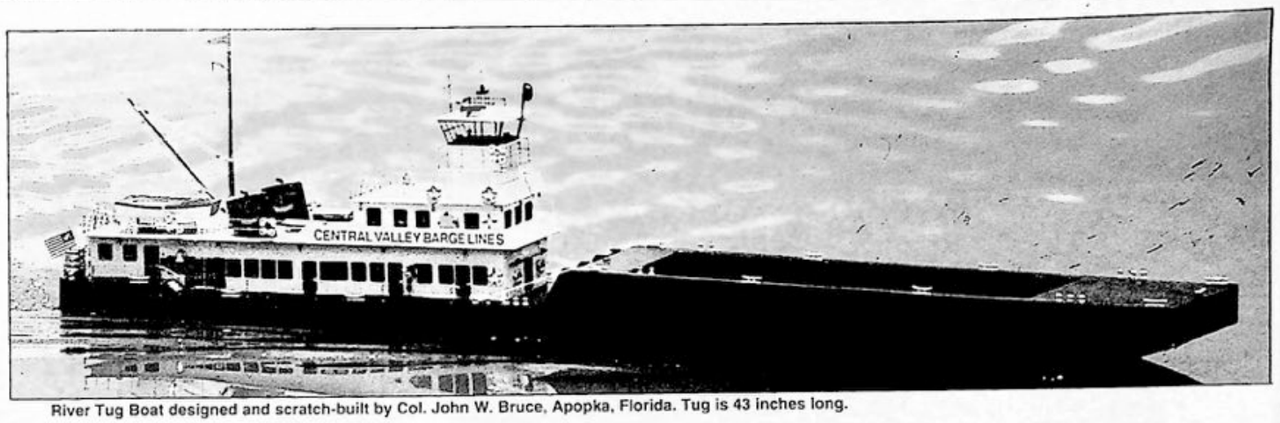
A 41' Coast Guard Utility Boat nearing completion and slated for the Coast Guard museum competition, being built by Robert Klubertanz, Holmen, Wisconsin.

In our Spring '90 issue "Cap'n's Log," we talked about the major project taken on by members of the EAA (Experimental Aircraft Association) to build a 1/72-scale model of the USS Enterprise Aircraft Carrier CV-6, which when completed, will be on permanent exhibit at the EAA Museum in Oshkosh, Wisconsin. Since that time, we contacted Museum Director, Carl Swickley, requesting some prints of photos used in the Museum newsletter so we could reproduce some of them in the magazine. Carl not only sent along some photos, he also tipped off Scottie Dayton, well-known model boating writer, of our interest in the project, and she promptly put together the excellent article in this quarter's issue, including additional photos of progress on the construction of the model.





(Left) One of two future building projects from regular contributor Graham Goodchild. This little R/C catamaran motor sailer can be powered to shore when the wind dies.(Above) Graham Goodchild's 16-inch long version of the W.H. Bancroft stern-wheeler from our Spring '88 issue. Built of balsa and plastic card materials, with working cabin and navigation lights. The crew are model railway figures.



River Tug Boat designed and scratch-built by Col. John W. Bruce, Apopka, Florida. Tug is 43 inches long.

In the most recent EAA newsletter, received after Scottie's article, Carl summed up the activity on the project. There are now (well, as of July 5, 1990) 28 EAA member/modelers at work on the project, representing six states. Each of the individual projects listed as follows are being worked on or have been delivered for final assembly: the basic hull, the island and 40mm gun tubs, all of the aircraft, molds for the 5"/38 guns, 40mm ammo clips, 40mm guns, the ship's 26-foot motor whaleboats, two aircraft towing tractors, large crane aft of the island, almost a thousand scratch-built figures to populate the flight deck, gallery deck, and island, MK 51 gun directors, fifty 20mm guns, more 40mm gun tubs, MK 51 gun tubs, paravanes, liferaft stacks, two hangar deck cranes, the Ensign, signal flags, and commission pennant, a complete job of weathering the ship for more realism, and the mobile crane "Tilley" used to move damaged aircraft on the flight deck. Hopefully, Carl will send some more original photos of the completed "splinter" projects... one showing fifty-one 20mm guns, and another showing eight 40mm quad gun mounts and eight 40mm dual gun mounts, are pretty impressive!

Richard Banks, of Crystal, Minnesota, has sent us photos of his R/C model of the "Turtle," the first submarine used in combat, and built in secret by David Bushnell during the Revolutionary War. We've included a photo of Richard's model. He has proposed a construction article on this project, and we'd like to know if there is reader interest in such an article. Let us know.

Col. John W. Bruce, of Apopka, Florida, who built the Century "Seamaid" inboard runabout that was pictured in our Spring '90 issue, has sent us another photo showing his river tugboat representing the Central Valley Barge Lines. It is 43 inches long and built from scratch. John's Seamaid, with Mickey and Minnie Mouse in the front cockpit, was built from a Sterling kit. Several readers have written in to inquire about it. This kit has been reissued after many years, and is again available. If you're interested, ask about it at your local hobby shop.

Model of 85-foot harbor tug built from *USB&SM* plans by R.K Stevens.

Here's John Bruce with the Sterling Century Seamaid, with Mickey and Minnie Mouse on board. See other photos of the Seamaid in the Spring '90 issue.

Another reader, R.K. Stevens, Peachtree City, Georgia, has sent a photo of his model of the 85-foot Harbor Tug, built from the construction article in our premier, Summer '87 issue and full-size plans. He says the area of most difficulty for him in this one-and-a-half year project was the laying up of the bulwarks. "This part was very labor intensive and time consuming because of all the compound curves involved." He goes on to say, "This model requires a lot of pre-planning and patience, which is probably common to scratch building. It was a real learning experience, believe me!"

Although I did not personally build this tug, I have scratch-built several similar vessels, and know that usually, somewhere along the job, you begin to think the designer craftily altered the drawing just enough so that no one else could duplicate his masterpiece! However, as you say, the will to overcome the problems usually wins out, and when you're done, you have something to be proud

Bill Zumwalt likes to build 1/4" = 1' scale models of towboats and barges for radio control. He has one now that handles 14 barges totaling over 60 feet in length. Tug normally pushes a tow of three barges wide, about 26 feet long. Bill wonders if he has some sort of record.

of. And it's especially satisfying to be able to truthfully say that you scratch-built it yourself, and there aren't ten thousand more out there just like it!

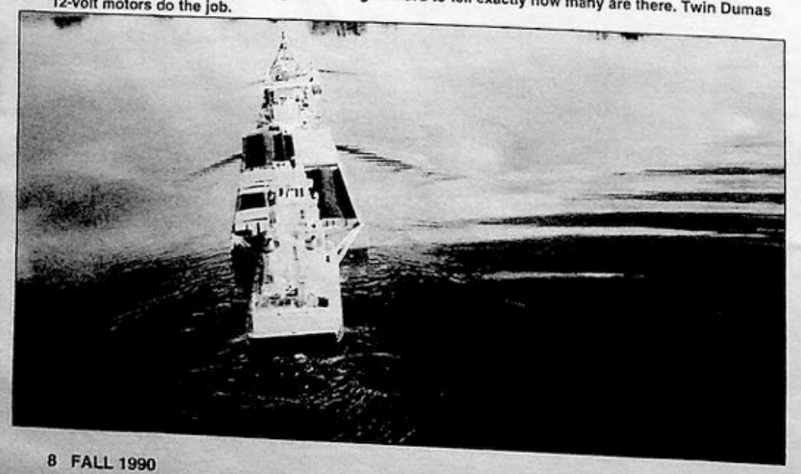
IMS MILWAUKEE

We're not sure that all of you will receive this issue in time to heed this reminder, but we'll mention it anyway. The first annual IMS Milwaukee Radio Control Model Sport and Hobby Show is taking place at the MECCA Convention Center in Milwaukee, Wisconsin on Friday, Saturday, and Sunday, October 5, 6, and 7, 1990. The public hours are 2:00 p.m. to 7:00 p.m. on Friday, 10:00 a.m. to 6:00 p.m. on Saturday, and 10:00 a.m. to 5:00 p.m. on Sunday. The Friday afternoon schedule was introduced at the 1990 IMS Pasadena show, and it turned out to be a very popular decision. The number of people who showed up to take advantage of a chance to beat out the Saturday and Sunday crowding created a new crowd of their own! Such a turn-out for the first try at these new hours was a surprise to all of us.

As we've been saying in our "Listen Up" ad, this is a "trade" show for the modeling public. However, as all IMS exhibitors know, meeting the modelers who are the most valued, final buyers of their products, is good for the manufacturers too. Like the other IMS shows in Pasadena, California and Atlanta, Georgia, as well as the WRAMS, Toledo, Northwest Expo, and MARC shows, the Milwaukee show will also feature selling *and delivering at the booth* of products by those exhibitors who chose to do so. In addition, there will be a Swap Shop, a Giant Raffle, and Static Model Competition in many categories. There will also be live indoor demonstrations of radio controlled boats, cars, and balloons. In other words, IMS Milwaukee will be a show the likes of which Milwaukee and Chicago area modelers have had to do without for too many years! Hope to see you there.

PT RECOLLECTIONS

Here's Bill Zumwalt's tug pushing some barges. Hard to tell exactly how many are there. Twin Dumas 12-volt motors do the job.



Frank Schwartz is a longtime R/C model aircraft acquaintance of this writer. We knew nothing of his connection with PT Boats until receipt of the following letter:

"Dear Bill;

"Concerning the article on page 10 of your Summer '89 issue about the WWII PT boat.

"I was one of those who served aboard those craft (the aviation program was phased out because the Navy had too many pilots!). While I had been aboard a Higgins craft, I served on and was most familiar with the Elco Boats.

"As I recall it, the Higgins boats were made in New Orleans and these were the first of the series. They were then superseded by the Elco boats.

"My recollections of the Higgins boats were that they were not as sleek or maneuverable as the Elco boats and the interior fittings were sparse to say the least. Would you believe that many of the Elco boats were fitted with real leather seats and cushions below decks, while the Higgins boats used just canvas?

"The Elco boats were made by the Electric Boat Company in Groton, Connecticut, I think, and they were really fine machines. Our Elco boat had a 40mm cannon on the stern, two pair of twin 50 caliber machine guns amidships (my battle station), a 20mm cannon just forward of the cabin and a 37mm cannon mounted on the bow. The boat was also fitted on each side amidships with eight rockets that swung out over the side for firing. Add to that, depth charges on the stern and four torpedoes, and you had a hard punching opponent. The Elco boats used a later mark torpedo which was clamped in a bracket and was merely rolled over the side by means of a release lever, as compared to the older types on the Higgins boats which had to be fired (and sometimes misfired... they stuck) from the tubes.

"I don't think the speed was exaggerated... surely not sixty or seventy knots, but I recall once when the torpedoes had been fired and the waters were fairly calm, that the speed of the boat was just unbelievable. All those Packard engines going wide open... very, very fast.

"I have a plastic model of the Higgins boat, but I have never seen an Elco boat either in plastic or otherwise. It is by far a much sleeker and prettier boat."

MAIL CALL

Dear Bill,

In all the years that Rod Carr has been writing quality articles for your publication, I find it difficult to imagine that you have had even one letter of complaint or request for clarification about his technical expertise or articles.

However, i have felt the need to write to you for some time with regard to another matter.

Many AMYA members and EC-12 skippers are upset because of the adoption by IYRU-MYRD of rules for an International EC-12 Class after a wide majority of AMYA members indicated that they were not in favor of the new rule. Since AMYA boats do not comply with the new IYRU-MYRD rules and vice-versa, there is a great deal of confusion and outrage among existing members and prospective new members. Unfortunately, Rod Carr played a prominent role in creating this situation.

Now to my point... I have enjoyed Rod's articles as much as anyone. What really aggravates me though is the paragraph at the end, or the clause in the middle, of Rod's "Strictly Sail" column about what a great rule IYRU-MYRD has and what a terrible rule AMYA has. That is simply not the case.

I cannot believe that you want your contributors to take positions such as these when a large number of your subscribers are AMYA members.

My request is that, as editor, you request that articles be devoted to the important technical information that Rod provides and to leave the editorializing to you, the editor. If you believe that AMYA has done a fundamentally poor job in the administration of its duties to its members, then use the "Cap'n's Log" column to tell your subscribers about it. If you feel this is the case, then come out and say it... but please don't sit back and let comments like this get into your fine publication without your approval.

I do not mean to deprive Rod of the opportunity to use boat examples in his writing because those examples are what gives his column such widespread applicability. What I think is important though, is to focus on the technical issues and leave the legislative and administrative issues to the appropriate entity.

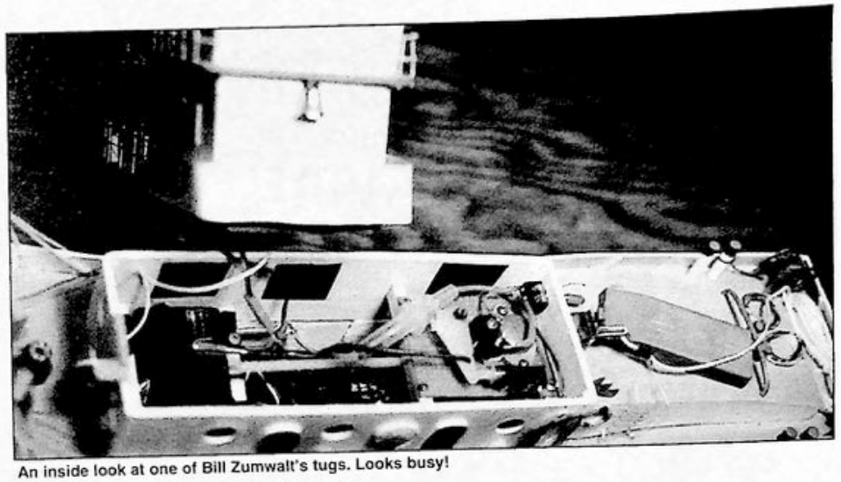
I would be the first person to defend freedom of speech and freedom of the press. However, I do not believe that these issues apply in this case. You, as editor, need to determine the context of the magazine and the applicability of articles.

Leave the editorializing in the Editors Column, include a Letters to the Editor column (and make this the first letter if you like), and make the Technical Columns truly technical.

With this exception, you have a truly wonderful publication and keep up the good work!

Regards,

Glenn Chalder, EC-12 Class Secretary, Simsbury, CT.



An inside look at one of Bill Zumwalt's tugs. Looks busy!

As you can see, Glenn Chalder can take the blame... or credit... for getting this department started in *U.S. Boat & Ship Modeler*. We'll give Rod Carr equal space in the next issue of USB&SM to respond to Glenn. But in the meantime, Chris Jackson, Reigate, England, editor of *Model Yachting News*, has some things to say about the same subject in his letter which is primarily an explanation of the question we raised about the what, who, and where, of NAVIGA.

NAVIGA BACKGROUND AND HISTORY

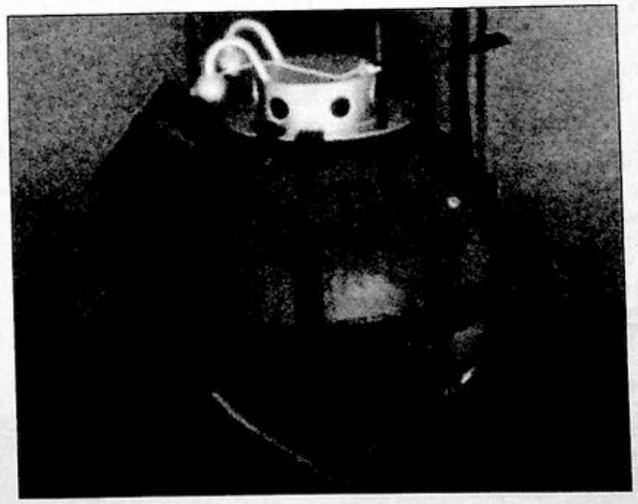
"The Naviga organization has been in existence for some 30 years, and this grew from the mid-European nations after WW-II when the hobby of model making began to cross boundaries and the need for some common rules for competition became obvious.

"The first nations to push the idea all spoke German, and some were in the Eastern Bloc, in which the governments were promoting model making and competition through schools and cadet and army, to give the young population a creative interest. As you know, the Western nations' governments take no interest in the model hobby, and so less money is available for a big governing body.

"Naviga made good use of the income from the many affiliated modelers, to set up excellent sections to cover all forms of modelmaking, formed rules for everything from Static Scale, Sailing Scale, Power Speed, and Sailing.

"Naviga's rules were gradually accepted by more and more nations, if only because they were already set out, by modelers, and if you wanted

continued on page 52



Richard Banks' R/C model of the Revolutionary War Bushnell submarine "Turtle," the first submarine used in combat. Look out, Jules Verne!

BOOK REVIEW

THE GRAND SCUTTLE, A Challenge of Perceptions?

BY PETER SHREEVES

The naval events of the First World War ran contrary to the naval thinking of the times as well as the naval thinking of our own time. Our current concept of sea power stems from the Second World War with its powerful carrier task groups and overwhelming amphibious operations. We think of the naval forces as prime players in deciding conflicts and the image is reinforced by the use of naval power in recent conflict areas like the Persian Gulf, the Gulf of Sidra and Grenada. Yet, the First World War was one in which vast naval armadas consuming a great portion of their nation's resources did not outwardly decide the outcome of the war despite sharp and costly naval battles. As if to add a confused postscript to the already obscured naval role, the interned German fleet sank itself in a British harbor seven months after the fighting had stopped.

If the scuttling seems incongruous today it was no less so at the time. The perplexity of the English at losing a captured fleet had to be seen against the background of a nation demobilizing its own oversized navy with no clear plans for the surplus German ships. The defiant act may have gladdened a heart or two in Germany but that country was equally overwhelmed by the realities of defeat and occupation. In the context of a world digging out of the rubble of a calamitous war, the scuttle would have seemed an absurd act were it not tragic on its own merits. The event could only make sense to the men on the ships isolated from the outside world, from their captors and even from the land itself. Due to the speed of larger events and a legacy of lingering and conflicting loyalties, the participants had no immediate interest in leaving behind a concise accounting of their actions.

In the decades afterward, additional information has come foreword from memoirs and other sources and a few books have been written about the scuttling, most notably one by Admiral Reuter himself. These sources remained, however, limited in scope as personal remembrances or brief overviews of the facts. When Mr. Dan Van Der Vat began researching *The Grand Scuttle* he wanted to present the story of the German High Seas Fleet from its inception to the scuttling and follow it through to its status in the present. He was able to draw on a strong background in journalism to compile sources accurately and present the story in a readable fashion. *The Grand Scuttle* does a fine job of relaying a sense of the men, the times and the events to the reader.

In the first section Mr. Van Der Vat portrays the political background for the creation of the German High Seas Fleet. During the late 1890s, Kaiser Wilhelm II, along with Admiral Von Tirpitz, began building a powerful navy with the intent of putting Germany in its rightful place as a world power. Britain, with the world's largest navy, responded to the German challenge by expanding her navy, and a naval arms race ensued. While Britain was concerned about the Kaiser's expan-

continued on page 24

THE 32-GUN FRIGATE ESSEX

BY SCOTTIE DAYTON

By Portia Takakjian. Phoenix Publications, Cedarburg, 1990. Hardcover, 128 pages, 15 black and white photographs, 300 line drawings, 9-1/2 x 10 format.

Although there are many models of *Essex*, few have been constructed following William Hackett's drafts. The original plans, stored in the National Archives, contain numerous bewildering lines. Furthermore, Hackett's reputation as a competent shipbuilder was smeared when his name was confused with that of his uncle, John Hackett, who was afflicted with temporary insanity.

Through painstaking research combined with her own sound understanding of naval architecture, the author has addressed each questionable portion of Hackett's draftsmanship, arrived at a viable solution, and has cited specific references which corroborate her conclusions. That Hackett knew what he was doing is proven by a letter from Essex's captain, Edward Preble, to President Jefferson, in which he stated that Essex was "a prime sailer, and the best model of a Frigate (of her rate) in the Navy." That the author is a highly competent researcher and historian is borne out by the many previously undetermined details of the ship which she has been able to reconstruct.

Although some of Essex's construction and fittings were patterned after British and Continental designs, she displayed many strictly American characteristics. The author includes these, some of which have not been brought to light before. For example, the combination of woolding and iron hoops appeared first in the United States. Tops for a First Class frigate and sloop of war were radically different from their British counterparts. American shipbuilders appeared to prefer planking with fair edges in parallel lengths rather than the top or hook-and-butt planking on British ships.

Then there is the lightning rod. Despite the fact that this fitting was standard on American vessels as early as the last quarter of the 18th century, the one on Essex never has been shown in any work having to do with plans or rigging until now. Lastly, the author succeeds in finally setting the record straight regarding the frigate's armament and when her armament changes occurred.

The text is clearly written and enhanced by tables plus a few illustrations. Even though the subject is akin to a doctoral dissertation, it is an enjoyable read, and that is a feat only an accomplished writer can achieve. Photographs of various Essex models are sharply focused and printed large enough for details to be observed.

Naturally, the heart of any "Anatomy of a Ship" book is the technical drawings. These are superbly executed. The usual unfortunate format of running illustrations straight across the gutter without breaking them has been avoided in most instances. Figures are of ample size and not jammed together on a page.

continued on page 26

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From the World's Leader in Electric Performance Boats

BY BOB NELSON

KINGFISHER

Introduction:

The "Kingfisher" was featured as a construction article in the May 1958 issue of American Modeler, *a publication which discontinued in the early 1970s. Full size plans were made available to readers at the time, and a set of these was used to produce the drawing reproduced herein, and which is now available from our plans service, see page 62.*

Because of the passage of time (32 years), radio and operating equipment has changed considerably, though basic design and construction of the vessel itself remains unchanged. Use your own judgment on the choice of materials and equipment. The original text is basically unchanged. wcn

This nice photo of a "Kingfisher" Jersey Coast Dragger, unfortunately, cannot be identified, as it became separated from the letter which it accompanied. If the photographer and/or builder can identify, please come forward for full acknowledgement.

Backbone of commercial fishing fleets from Maine to Virginia, the dragger is a hard working vessel. Built 50 to 75 years ago in the days of sail, these stout wooden-hulled boats continue to put to sea even though their ancient bones now rattle with modern diesel engines. So good is the basic hull design it is still used for many modern trawlers and fishing boats.

Our model is patterned after boats having Manasquan, New Jersey as their home base. These boats vary from 50 to 100 feet in length. No two are alike as it is the custom for individual owners to obtain an old hull and rebuild to suit their particular needs. The Kingfisher is used primarily for scallop fishing. These boats travel about 8 to 12 miles off the Jersey shore to drag for scallops on the ocean bottom. The skid (or trawl board) is pulled along ahead of the net to stir up the bottom. The net catches whatever is stirred up, then is raised to the deck where the scallops are sorted.

Generally this operation is conducted at a fair speed. Should the net or skid hang up on a wreck or rock, the boat is in danger of being capsized since the drag is carried from its boom tip. Back in the mid-'50s one Jersey Coast dragger had the unpleasant experience of hooking the biggest catch of all... the submarine Nautilus running submerged! There were some frantic moments aboard the dragger while the crew cut themselves loose to prevent being capsized and towed under. The atom-powered Nautilus had but a few paint scratches when it arrived in New London, Connecticut with some of the dragger's gear still caught on the "sail."

Our model, not an exact copy since plans are impossible to obtain, is patterned after the 75 footers "Kingfisher" and "North Star." Because of balsa construction and the resulting buoyancy the depth of the underbody has been reduced one third, so that your hull will ride at its proper water line without too much ballast.

Construction is similar to the real boats: keel, frames, and planking. It has no quickie short cuts; building will require care and patience.

Hull is built upside-down over a jig used to position frames and keel. Basic part of jig is a flat pine board 1 x 6 x 36 inches. Centerline and each frame location are marked on the board. Strips of 1 x 2 and 1 x 3" are nailed on edge across the board at each frame location line. Length of cross strips which hold frames upright should be slightly less than full width of particular frame.

With jig prepared, balsa can be cut. Make stem and keel using profile outlines for patterns. Cement stem, keel, and stern pieces together flat over profile. Set aside to dry. Make all frames from 3/16 sheet, assemble over outlines on plan. Joint where sides and bottom parts of frames meet can be reinforced with gussets of 3/32 or 1/8 sheet. Note that tops of Frames 3 and 4 are tied together with a piece of 3/16 x 1/2. Frame 4 has two layers forming ledges for removable and permanent decks.

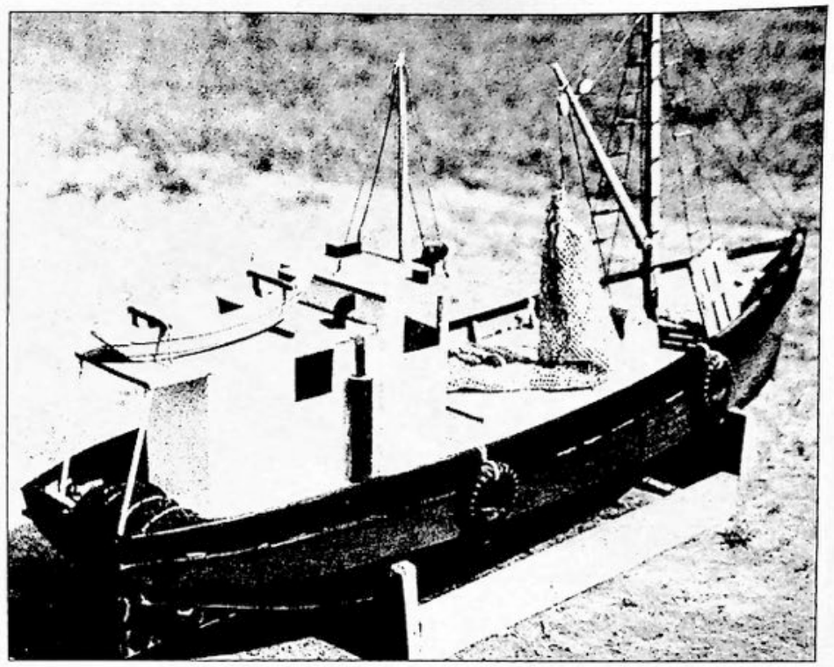
Now mark each frame location along keel and mount upside down over centerline of building jig. Be sure keel remains centered over jig. Aft end of keel at transom should be blocked up to proper height with scrap balsa or pine. Pin stem and stern firmly to jig board.

Next slip each frame into place under keel with face flat against jig cross strips. Align frames with marks on keel and carefully level and center against jig cross strips. Pin frames firmly to jig strips. Cement frames to keel. Frame outlines allow for beveling edges to follow curve of hull. Cut this bevel as needed on each frame. Hold a strip of balsa along edges of frames to serve as guide to get proper angle. Bevel is sharpest on bow frames. Center frames have none and stern frames have shallow bevel. Bevel varies along edge of each frame, being nearly flat near keel and changing near deck line. The keel and frame assembly is the most important structure in the whole boat, so alignment should be as perfect as possible.

Planking is started next. Use strips of uniform hardness so that structure will not be distorted. Begin planking at keel and work outward around hull. Put one plank at a time on each side. Soak planks in hot water as needed to make bending easier. Planking ends are beveled to make tight joint against side of stem. Plank hull bottom to about the waterline and let dry thoroughly.

Remove entire assembly from jig and continue planking, working from deck line downward on each side. Plank ends will have to be tapered where planking meets at stern. When hull is completely planked it should be sanded smooth and any cracks filled. Apply several coats of clear dope and sand smooth. Primer and final finish can be applied now if desired. The hull is given several coats of Duco auto lacquer primer and sanded smooth. Then silk or nylon is applied with clear dope. Next a minimum of six coats of auto primer are applied over silk to fill grain. Sand smooth after each coat. Build up good primer surface, then colored lacquer will go on smoothly. At least three coats of colored dope or lacquer will be needed for final finish.

Work on inside of the hull comes next. Cement mast step in place on top of keel. Put lower deck in place between Frames 4 and 6. This deck can be placed lower in hull if more space is needed for R/C equipment. Motor bearers, motor, prop shaft, and tube are installed next. Drill hole through keel carefully. Shaft log and skeg on outside of hull can be added now. Skeg can be made of two pieces of 3/16 sheet grooved for shaft tube and cemented to keel on outside. *(Same thing goes for stern keel piece before assembling keel. wcn)* Any space inside hull around shaft tube should be filled with Plastic Wood. *(This was written in 1958, before epoxy and microballoons were commonplace. wcn)* Align motor and shaft carefully and join with universal joint. Bridge Frames 8 and 9 with 1/8 sheet each side of shaft to form platform for motor battery. Servo motor platform is put in place between Frames 10 and 11 *(Modern radios will call for different installation. wcn).* Rudder post and tubing are cemented in place against rear of Frame 11. Complete all work on inside of hull before adding deck.



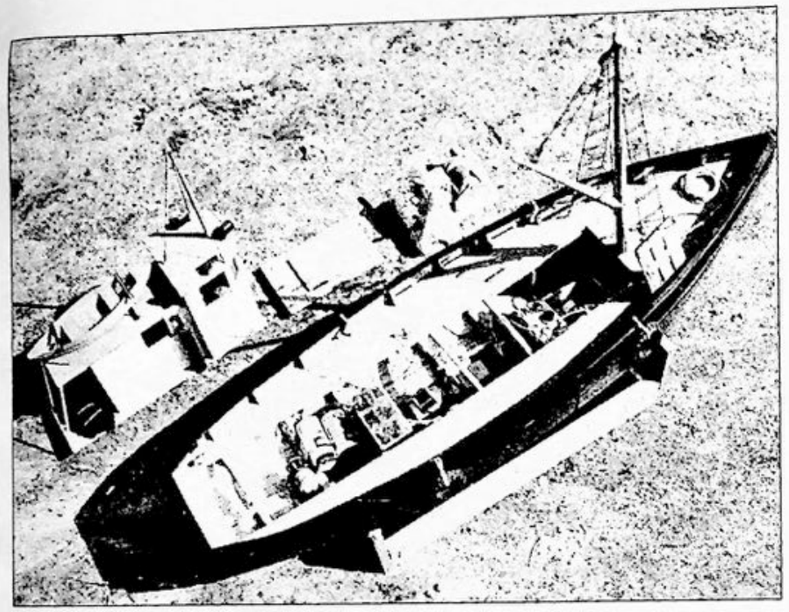
Cement deck beams to top of frames from Frame 4 to transom. These form ledge for removable and permanent deck. Add permanent deck along sides and forward from Frame 4. Use hard 1/8 sheet. Scribe lines a 1/2 inch apart to simulate deck planking, if desired.

Removable deck from Frame 4 to cabin front should have underside reinforced with 3/16 sq. strips running cross grain about two inches apart. Complete work on deck by sanding smooth and apply two coats of clear dope.

Railings: Cut 21 pieces of 3/16 sheet to form braces. Note that height changes ahead of Frame 7, so individual braces will have to be cut for each frame. Cement braces to deck at each frame set back 1/16" from deck edge. Cut rail sides from 1/16 sheet. Use profile view for pattern. Cement 1/16 sides to braces and deck. Make cutouts for scuppers and at bow and stern cleats before putting in place. Rail is topped with 1/8 x 3/8 strip. Round off both edges. If strip is difficult to form to sheer curve, cut rail top from 1/8 sheet using plan for pattern. Add 1/8 x 3/16 rub rail. Round off outer edges.

Cabin: Sides are 1/8 sheet and roof is 1/4 sheet. Sides can extend down to frame tops or be built directly on removable deck section. Cabin front and angular sides have window cutouts with 3/16 inch wide sills on each panel. Windows are clear plastic cemented to inside of sides.

There are many additional details to be added. Bow and stern cleats are carved from 3/16 sheet. These are heavy wood on real boat rather than sleek cast metal. Skid board is flat, made of wood sizes shown. Front and back edges are faced with strip of copper or brass. It is lashed to rail or ladder on right side. Mast should be pine or hardwood. Ladders are made separately on flat board then tied into place from deck to mast. Pad eyes for stays and shrouds can be model fittings or you can bend them



from paper clip wire.

Dummy winch is 1/8 sheet, a large spool and bits of 3/4 and 3/8-inch dowel. It should be cemented permanently to forward removable deck section. Cable from winch runs from drum to boom block to net. Large hooks can be made from 1/16 dia. soft wire. Main hatch is 1/4 sheet cemented to center removable deck section. Bell on front of cabin was scrounged from parakeet cage. Christmas decoration bell can be substituted. Running lights can be model fittings or made to work as on original. Sides and backs are 1/16 sheet with curved red and green plastic enclosing a flashlight bulb.

The original model had working lights all over boat. In addition to running lights, cabin had flashlight bulbs inside. Masthead light is model R.R. grain-o-wheat bulb wired to 6-volt motor battery boxes with separate switches for cabin, running lights and searchlight. An electric train or other toy light can be used for searchlight. Toy car or truck tires serve as bumpers on hull sides. These are hung from lashings fastened to inside of braces at Frames 4 and 9. Not shown on plans are rub strips on right side of hull below rail extending down just below waterline. These are 1/16 x 3/8 strips 4 inches long cemented with front edges even with Frame 4.

Painting schedule is as follows: Hull bottom; dark red. Hull sides; green. Rub rail, rail sides, rail top and vent; black. Deck, rail inside, roof, window sills, and dory insides; medium gray. Masts and dory outside; orange. Cabin sides, mast top, and spreader; white. Muffler and stack; rusty brown.

The original model had a simple R/C installation consisting of a deBolt 3PN servo for steering and forward and reverse power. Receiver was North American 2-tuber. Receiver, relay batteries, meter socket, pot, and switches, were all contained in a single box to facilitate changing from one boat to another. Antenna wire was run up rear of mast. All parts of R/C circuit were connected with plugs and clips for quick disconnect and transfer. A Robt. Burns Cigarillos box was cut down to 3" wide and used for receiver, etc. This makes a handy unit and adds waterproofing protection to R/C components. *(Obviously, none of the radio equipment mentioned is available now, except in someone's antique collection. You're on your own, and there's a lot more you can do now, complete with sound effects. wcn)*

Your model will require some ballast if payload described is carried. The motor battery holds the stern down all right, but one to three pounds of ballast can be added to bow to bring it down to the waterline. Model should be trimmed to waterline shown for best performance.

The Kingfisher is a very satisfactory model. It is light enough so that power is adequate. The hull is stable and seaworthy. It scoots right along and will turn on a dime. Above all, it has the authentic appearance of the real boat. All it needs to be complete is a flock of seagulls screaming in its wake and maybe an opened can of sardines in the hold for the proper atmosphere. •

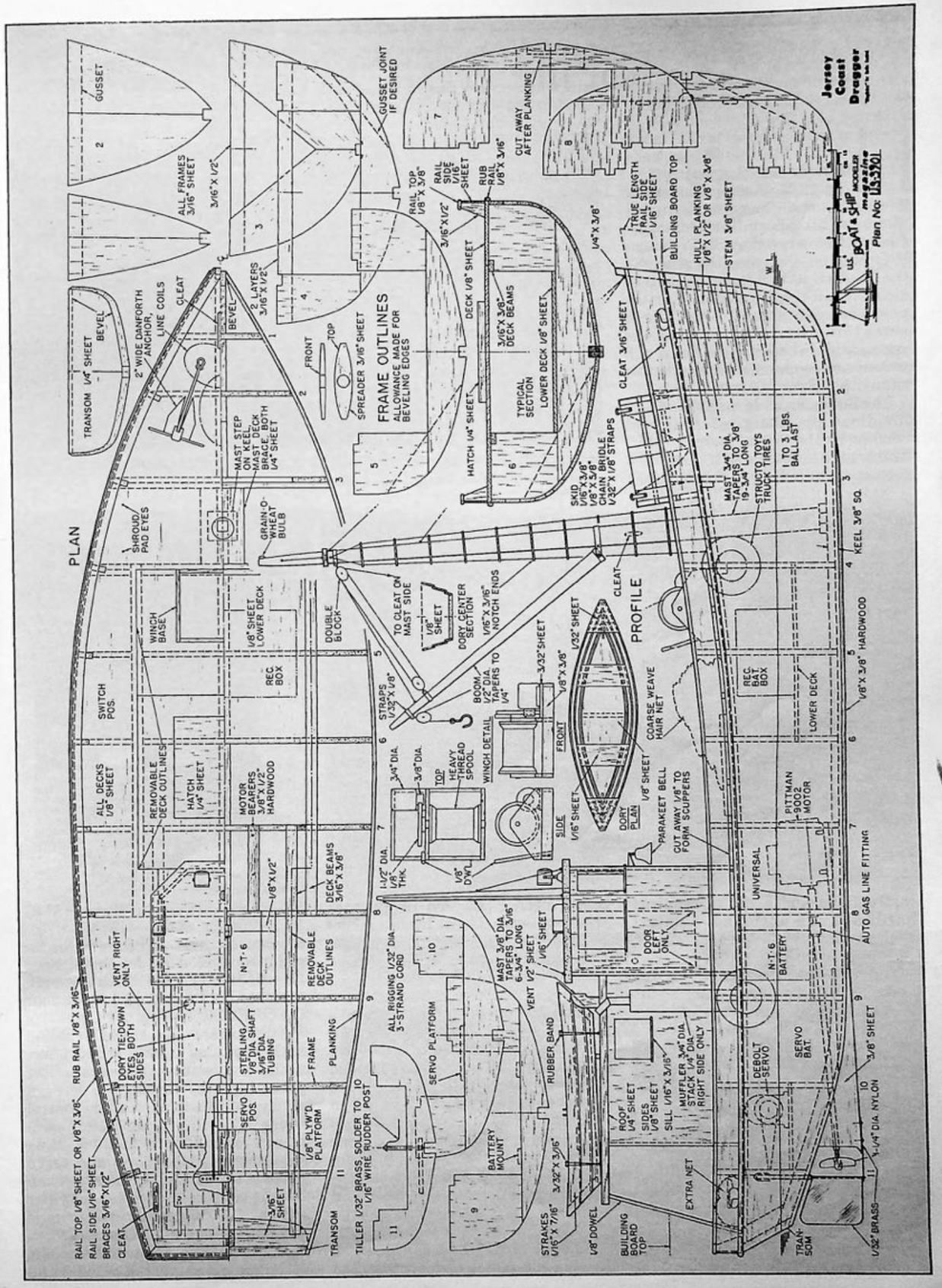
BILL OF MATERIALS

"Balsa" and "inches" unless otherwise noted.

Four pieces 3/16x3x36 for Frames; (9) 1/8x3x36 for Deck, cabin sides, rail top; (1) 1/4x3x36 for Roof, hatch, mast step, transom; 3/8x3x36 for Keel, stem, stern keel; (2) 3/16x3/8x36 for Deck beams; (1) 3/16x1/2x36 for Frame tops, braces; (2) 1/16x3x36 for Rail sides, dory strakes; (32) 1/8x1/2x36 for Hull planking; (2) 1/8xx3/16x36 for Rub rails; (1) 1/8x3/8x24 Harwood; outer keel; (2) 1/16x3/16x36 for Window sills, ladder steps; (1) 3/4 dia. dowel or pine 20" long; mast; (1) 1/2 dia. dowel or pine 10" long; boom; (1) 3/8 dia. dowel or pine 7 inches long; cabin mast; (1) 1/4 dia. dowel 2 inches long; stack; (1) 1/8 dia. dowel 12 inches long; roof braces, winch lever.

Also: 1/32 thick brass for tiller skeg and rudder; 1/16 dia. wire for rudder post; 1/8 O.D. tubing for rudder post tubing; 1/8 dia. drive shaft, 3/16 O.D. shaft tubing. Auto gas line fitting for stuffing box; Universal joint; electric motor; rechargeable battery; R/C equipment as required; Cement, clear dope, auto lacquer primer, silk, colored dope or lacquer.

Model ship fittings: 27 Pad Eyes (Eyebolts); (1) 2x2-3/4" Danforth anchor; (2) 1/2" single stropped blocks; (1) 1/2" double stropped block; (1) 6 inch length 10 link chain; (1) pair 3-1/2" oars; (1) pair 5/16x1-1/8" running lights.

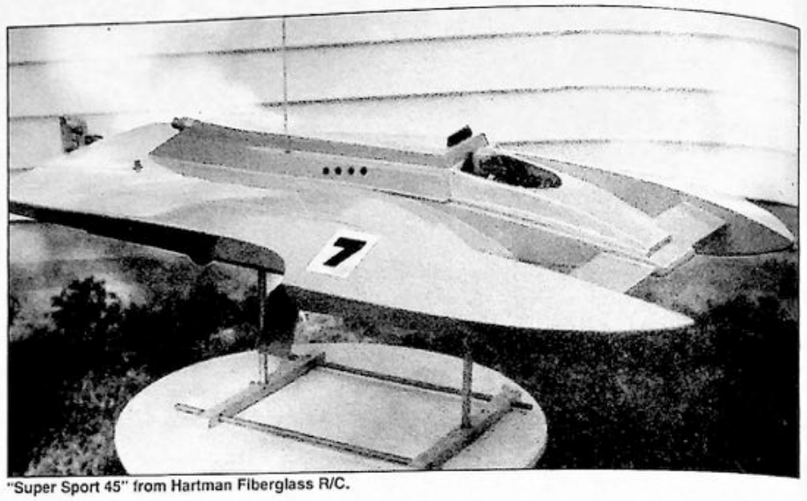


FULL PAGE PLANS AVAILABLE: SEE PAGE 62

SHIP'S STORE

Hartman Fiberglass R/C, Box 86, 233 Melrose St., Argenta, Illinois 62501, phone (217) 795-2275, is now offering the "Super Sport 45," semi-scale hydroplane for the Sport 40 racing class. Designed and raced by Phil Thomas, R/C Marine Designs, Decatur, IL, the Super Sport 45 has proven to be a consistent trophy winner over the past year and a half. It has placed every time it has raced. It is fast and dependable in both smooth and rough water, and is claimed to turn better than other Sport 40 boats.

The Super Sport 45 is supplied as a handlaid up fiberglass hull and cowling by Hartman Fiberglass R/C. The engine mounts and transom are factory installed. Complete building instructions and a list of required hardware are included. Contact Dwight Hartman for further details.



"Super Sport 45" from Hartman Fiberglass R/C.

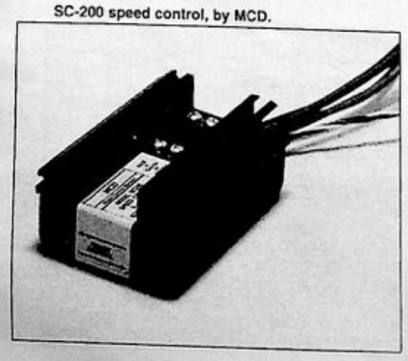
Electric powered "Hurricane" catamaran by Kyosho, from Great Planes Dist.

• • •

The Kyosho "Hurricane" is the latest electric-powered racing boat to be offered by Great Planes Model Distributors, 1608 Interstate Drive, Champaign, Illinois 61820, phone (217) 398-3630.

The Hurricane is a catamaran hull which uses the proven Jet Stream's outdrive system combined with twin LeMans 360ST motors, which are included with the kit. Also included are twin adjustable trim tabs to improve stability and high speed handling. It is said to be able to withstand a full-speed 180-degree turn. Colorful decals shown in photo are included, or the boat can be painted to your choice of color and markings.

SC-200 speed control, by MCD.



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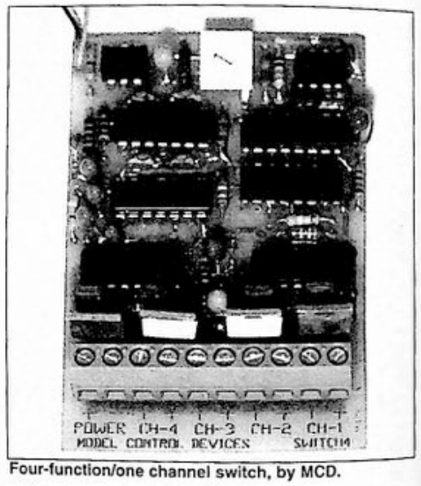
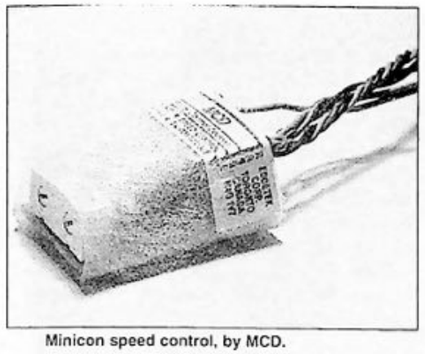
Model Control Devices (MCD), a division of Eddetek Corporation, 733 Millwood Rd., Toronto, Ontario M4G 1V7, Canada, phone (416) 483-6702, introduces three control devices for radio controlled model boats. First there is the Switch 4. With this unit, the modeler can control up to four On-Off functions from one channel of the radio control system, including such items as lights, sound effect units, cranes, bow thrusters, water pumps, etc., by varying the position of one of the transmitter control sticks. The unit is completely electronic, with FET switching, thus eliminating stuck relays and servo microswitches, and operates at from 6 to 12 volts at 3 amps capacity per switch. The suggested retail price is $89.95 U.S. or $99.95 Canadian.



Four-function/one channel switch, by MCD.

Also available are two electronic speed control units, the SC-200 and the Minicon for scale boats. The SC-200 is for medium scale models and has a capacity of 8 amps at from 6 to 14 volts, is fully proportional forward and reverse, and completely solid state, with no reversing relay. The Minicon speed control features extremely small size, being only 1-1/2 x 7/8 x 5/8 inches overall, and weighs 3/4 of an ounce. It can operate from 4.8 to 6 volts at 2 amps and from 7.2 to 12 volts at 1.5 amps. This unit can open the possibility of building and operating extremely small models with full R/C capability. Suggested retail of the SC-200 is $69.95 U.S. and $74.95 Canadian, while the Minicon is $36.95 U.S. and $39.95 Canadian.



Minicon speed control, by MCD.

Running Hardware Merchandiser by Midwest Products.

• • •

M.A.C.K. Products, known primarily for its model boat accessory lines, has just announced its first distributorship of model boat kits suitable for radio control. The company has taken on the Lindberg Products model boat line, which includes the "PT-109" (M812), the "Chris-Craft Sport Fisherman" (M811), the "Chris-Craft Constellation" (M814), and the "Blue Devil Destroyer" (M815).

M.A.C.K. Products also manufactures the original twin-engine high-performance conversion packages developed for the Lindberg line. Also available are high-performance NiCd battery boat packs, and the high-performance "KSC" Twin Charger, which allows charging of two separate rechargeable battery packs at the same time in 15 minutes. For further information, and a catalog, send $2.00 to M.A.C.K. Products Model Marine, P.O. Box 464, Long Branch, N.J. 07740., phone (201) 870-2966. Tell Richard we sent ya!

• • •

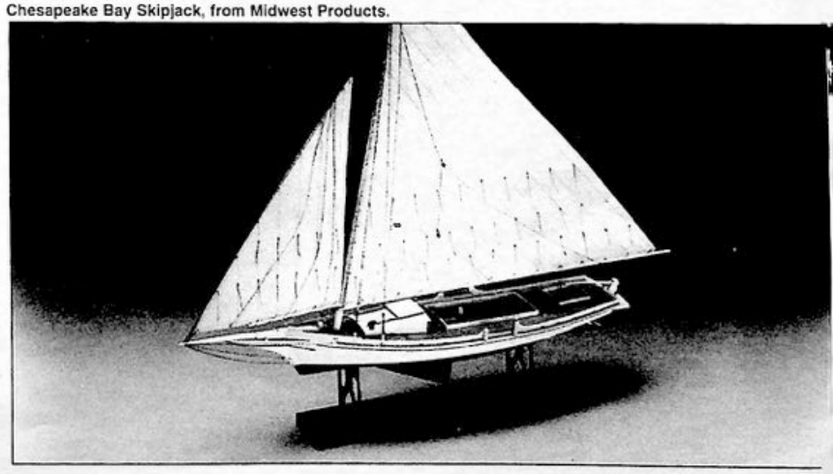
Midwest Products Co., Inc., 400 S. Indiana St., P.O. Box 564, Hobart, Indiana 46342, phone (219) 942-1134, is now offering hobby dealers a Running Hardware Merchandiser, which makes it convenient for model boaters to select and purchase running hardware for their various Midwest Products R/C Wood Boat Model Kits. It organizes and displays Midwest's selection of propellers, prop shafts, and Marine power systems for one-stop shopping. The handy Boat Kit/Running Hardware Reference Chart will help you make the exact selection of components you'll need.

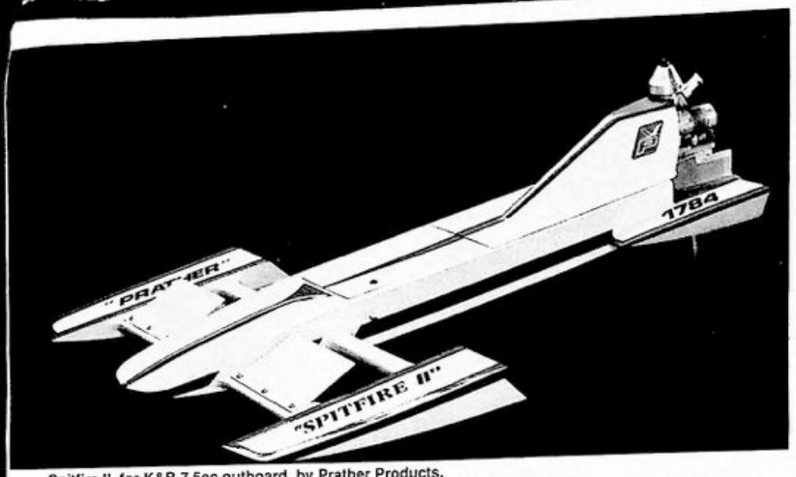
For the static scale model boater, Midwest Products has just released two new Apprentice boat kits designed especially for the beginning modeler, but no less attractive to the more experienced modeler who will want to add even more detail. These are the Chesapeake Bay Crabbing Skiff and the Chesapeake Bay Skipjack. Both kits feature pre-cut and sanded parts that assemble easily. The Success Series (R) Construction Manual covers all phases of building and construction, from laying the frames to placing the finished model on its display stand. Add the extra details provided in the complete fittings set to complete a model you'll be proud to display.

The Crabbing Skiff is to a 5/8" = 1'

Chesapeake Bay Crabbing Skiff, from Midwest Products.

Chesapeake Bay Skipjack, from Midwest Products.





Spitfire II, for K&B 7.5cc outboard, by Prather Products.

Adaptor and keyless chuck for Dremel tools. (Inset) Saw and arbor all from Eastern Tool and Supply Co.

scale, 14-1/2 inches long, 13 inches high, and sells for $39.95 suggested retail. The Skipjack is to a 7/16" = 1' scale, 21 inches long, 4-1/2 inch beam, and 20-1/2 inches high. Suggested retail is $69.95.

• • •

Eastern Tool and Supply Co., 149 Grand St., New York, NY 10013, phone (212) 925-1006, makes an adaptor and keyless chuck (0 to 5/32" capacity) #501, which replaces the collet, chuck and wrench on all Dremel power tools except the two current models 850 and 395. The replacement chuck and adaptor runs 100% true and concentric, and sells for $18.95.

Also available from Eastern Tool is a steel saw (503, $6.00) and arbor (502, $6.00) made of hardened ground and polished steel. These saws work well for cutting plastic, wood, soft metals, Lexan, plexiglass, and all similar materials. Blade is available in .006, .008, .010, .012, .014 (most popular), .016, .018, .020, .023, .025, .028, and .032 inch thickness, 1" outside diameter. The one arbor fits all, has a 1/8-inch diameter shaft, and holds blade rigidly centered.

• • •

Outrigger hydros are the fastest class of model boats available. The Spitfire II is the latest of this type, designed for the K&B 7.5cc outboard, and produced by Prather Products, Inc., 1660 Ravenna Ave., Wilmington, CA 90744, phone (213) 835-4764. The Spitfire follows the very popular Prather Spitfire I designed for the K&B 3.5cc outboard. With the use of the Mod Engine Kit for the K&B, the Spitfire II, like the I, becomes a race boat to be reckoned with.

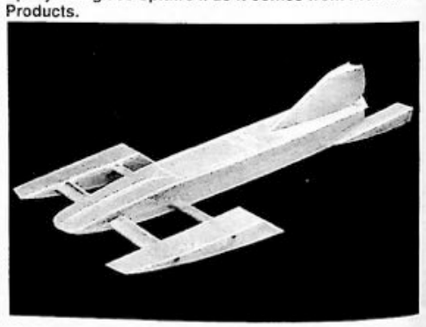
The Spitfire's unique one-piece epoxy fiberglass design ensures quick, accurate construction, while its record-breaking speed brings model boating performance to a new level. The prototype quickly set a new national straightaway record of over 65 mph, and also set a new oval course record.

The sponsons are factory joined to the hull with aluminum tubes molded inside. The sponson angles are factory set to insure accurate, stable performance. A streamlined epoxy-fiberglass engine cowl covers the rear tank area to provide aerodynamic efficiency and protection from water spay for both the engine and tank. An epoxy fiberglass hatch covers the radio compartment which is formed by the center portion of the hull. Radio mounting hardware, including servo mounts, are provided.

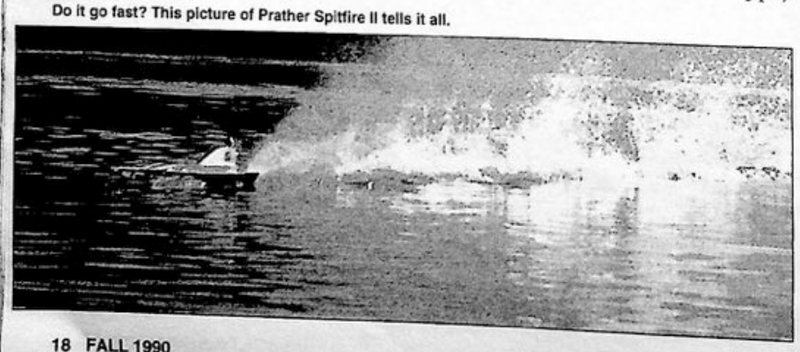
Construction of the Spitfire is made easier by the availability of an Accessory Kit, which contains, in addition to a boat stand kit, virtually all accessories required to complete the

continued on page 26

Epoxy fiberglass Spitfire II as it comes from Prather Products.



Do it go fast? This picture of Prather Spitfire II tells it all.



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BY SCOTTIE DAYTON

U.S.S. ENTERPRISE: PROJECT ENTERPRISE

The 11-1/2 foot long waterline hull up to the forecastle deck and hangar deck was built using the moldless composite aircraft construction method. This part of the project was completed by EAA Chapter 913 at its workshop in Chilton, Wisconsin.

During the first week in January 1989, work began on a 1:72 (1" = 6') scale hull of the World War II aircraft carrier *USS Enterprise* (CV-6) at the EAA (Experimental Aircraft Association) Air Adventure Museum in Oshkosh, Wisconsin. The idea of creating this 11-1/2 foot long waterline model, complete with air wing on its flight deck, was the brainchild of Museum Director Carl Swickley. He was faced with the problem of deciding what should be the main attraction for the Navy exhibit in the museum's new $3 million 44,000-square foot addition called Eagle Hangar. Remembering how popular a large scale model of an aircraft carrier was in the Smithsonian Institution's Air and Space Museum, Swickley felt that such an impressive display would be just the ticket. "Project Enterprise" was born.

Few museums are fortunate enough to have a budget which allows the commissioning of models. The EAA is no exception. From the onset it was clear that this monumental venture would have to be undertaken solely by volunteers. The first group to step forward was EAA Chapter 913. David Juckem and Mike Severson laid up the hull via the moldless composite aircraft construction method. The hull was built upside down with the hangar deck serving as a building base. Bondo fastened the numerous 1/32" thick aircraft grade plywood frames to the deck. Between them went roughly shaped "open celled" foam cores sold by Wicks Aircraft Supply, 410 Pine, Highland, Illinois 62249. The foam blocks were cut with a hot wire device which moves through the material at one inch every three seconds.

Bow view shows bulge of anti-torpedo blister added to hull early in war.

After hours of judicious sanding, a minimum amount of micro-balloons mixed with epoxy resin was applied to the hull, then hull and deck were covered with two layers of fiberglass. What irregularities remained were evened up with body filler and the time-consuming sanding began anew. Lastly, the hull was sprayed with a primer coat of paint. The end product proved incredibly light, yet strong.

Swickley, in the meantime, had been on the phone rounding up financial support and more volunteers. The USS Enterprise Association (CV-6) promptly agreed to underwrite the model's construction plus perpetual maintenance and upkeep. Award-winning shipmodeler, Bob Hinz, of Hibbing, Minnesota, was so enthused about the project that he offered to build the entire model! Swickley quickly realized that this was too much to expect from one individual. After some more discussion, Hinz agreed to detail the hull and assume overall responsibility for the model's assembly and completion. The basic hull, from waterline to forecastle and hangar decks, was trucked to him in May 1989.

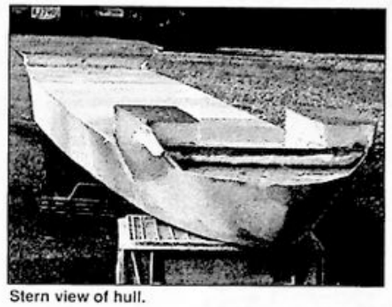
As Project Enterprise advanced and its full potential was realized, the last result anyone wanted to see was a "sterile" museum model. After reviewing Enterprise's illustrious career, it was decided that the replica should reflect one day in the carrier's history—19 June, 1944, with "The Big E" preparing to launch her planes for the Battle of the Philippine Sea. With that in mind, Hinz went into his basement and began working.

Days were spent measuring, remeasuring, and planning exactly how to approach such a massive undertaking. The first thing Hinz did was to mark the centerline on the hull, along with important stations. These included where the flight deck would be cut into three sections and where the indentations would occur from the hangar deck up to the flight deck.

Next came the 22 feet of panels which comprised the port and starboard sides of the hangar deck. Each panel of 1/16" thick aircraft plywood had to be specially fitted to the deck because it wasn't a perfectly flat surface. To prevent them from sliding in and out of position, Hinz backed them top and bottom with pine braces. Lastly, he strung a chalk line across the tops of the panels and used it to check that they were all even horizontally, while a carpenter's level adjusted the vertical plane. Every panel had to be perfectly straight fore and aft and side by side. Then and only then could the detailing of one at a time begin.

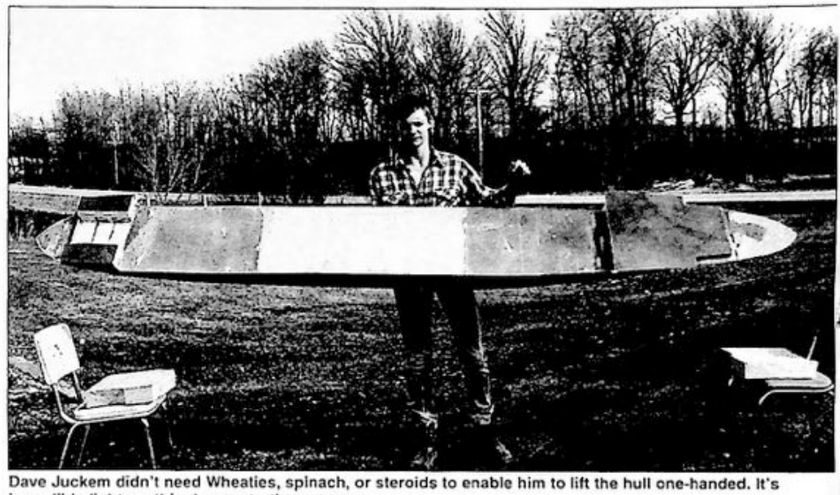
Hinz, accustomed to building in either 1/8 or 1/16 inch scale, had no difficulty in adjusting to 1:72. The biggest problem he encountered was the plans. They had to be scaled up from 1:96, and every once in a while Hinz would catch himself making something in the wrong scale. To compensate for his weakness at the drawing board, Hinz used a pantograph to enlarge patterns. That saved hundreds of hours.

Being retired, Hinz could devote the massive amount of time needed for a hull that size. He averaged at least eight hours a day, working weekends and even until midnight if on a roll. When he'd hit a snag, he'd back off and do something else or take a break. Upon returning to the problem area, things would fall into place. It was only natural for the immensity of the project to overwhelm him at times, but the dismay didn't get the best of him. Hinz kept on modeling, his 15 years of experience buoying him up.



Stern view of hull.

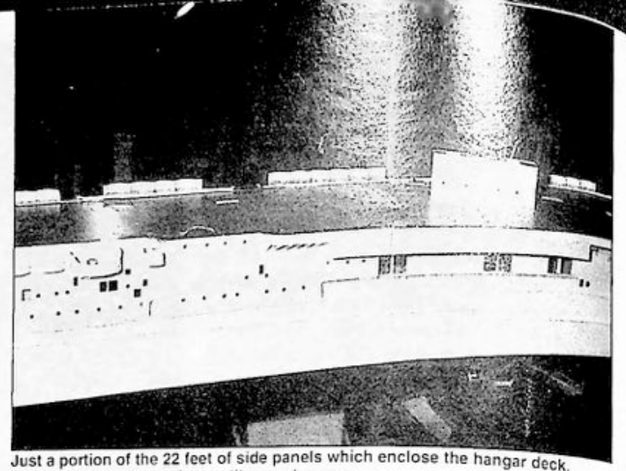
In July 1989, Hinz trucked the hull to the EAA Fly-In at Oshkosh. Here he met Jack Streeper for the first time. Streeper had volunteered to build the island from the flight deck up, the 40mm gun tubs forward and aft of the island, and the 5"/.38-caliber guns. He had brought the superstructure with him from Fairfax, Virginia. The hull, with its island, was placed on a bench in Eagle Hangar and served as its centerpiece. For the seven days of the event, Hinz and Streeper began work early in the morning and continued into the night, all the while answering thousands of questions from those passing through. (The EAA Fly-In attracts



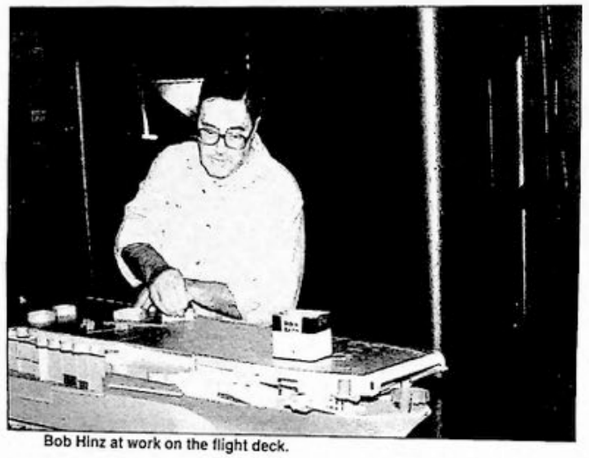
Dave Juckem didn't need Wheaties, spinach, or steroids to enable him to lift the hull one-handed. It's incredibly light, as this demonstration proves.

Foam rubber cushions the bow and stern while Dave, sans boots, climbs on board to show the strength of the moldless composite hull. Ever tried log rolling, Dave?

Bob Hinz at work in his basement in Hibbing, Minnesota. Detailing the hull was the hardest assignment because there is so much of it!



Just a portion of the 22 feet of side panels which enclose the hangar deck. Styrene gun tubs popping up like mushrooms.



Bob Hinz at work on the flight deck.

Fitting the flight deck in the No. 3 elevator area.

800,000 enthusiasts and 70,000 museum visitors annually.) In spite of all the distractions, the men accomplished a lot and were able to plan future progress.

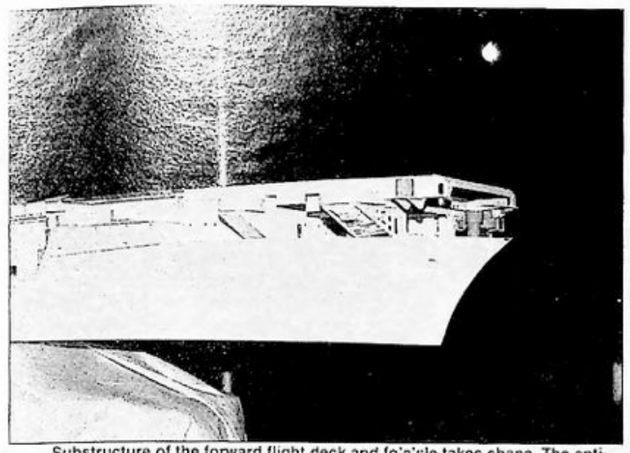
In February 1990, Hinz was struck by an anxiety attack. Only five months remained before the hull was to be completed, and although everything was progressing smoothly, it just wasn't happening fast enough. Hinz put in a call for help to Streeper, who packed his long johns and came to frigid Hibbing for two weeks of intensive modeling. Working with Streeper was "modeler's heaven" for Hinz, a self-taught builder who never had anybody in his area to talk to on the subject. The men worked 12 to 14 hours a day, sometimes until midnight, without ever feeling time pass. Only Claire Hinz' call to "come up from the dungeon and get something to eat" startled them into how many hours had gone by.

Streeper's assistance made it possible for Hinz to meet his July deadline. The Virginian did a lot of detailing at the bow and stern of the flight deck, made gangways, and some gun tubs. His biggest contribution, however, probably was introducing Hinz to styrene. All of Hinz' other models had been done in wood, and so was Enterprise until February 1990. Styrene proved ideal for making cabins, gangways, and gun tubs. It bent easily and more importantly, needed no sanding or priming prior to painting. What a timesaver it was.

Of all the fittings on the hull, Hinz enjoyed creating the gun tubs most. There were a large number of them, each had curved surfaces, and Hinz learned the properties of styrene through them. The detail he liked least was making and installing the handrails on ladders. This drove him bananas. Other than that, Hinz really enjoyed the adventure. The only thing he didn't appreciate was having a deadline. That made him say, "I'll do something this way because it'll save time;" whereas, if he had had more of it, he would have added extra detail. Although Hinz didn't keep a log, he has estimated that detailing the hull took around 3,000 hours.

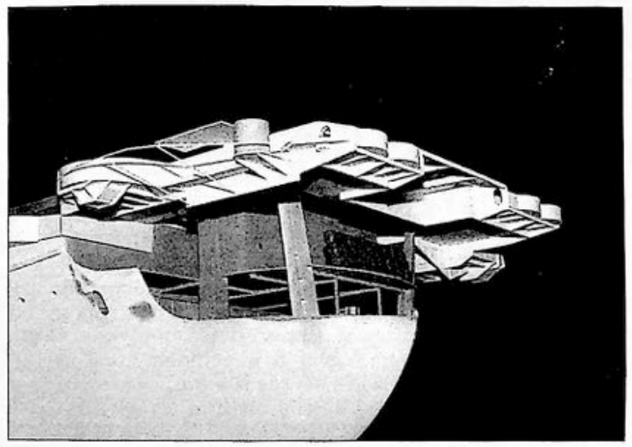
Jack Streeper became involved with Project Enterprise because he's a retired Coast Guard friend of Carl Swickley's. Streeper, who's been modeling ships, airplanes, and HO-gauge trains since childhood, began construction on the island in March 1989. Because the island was 95% scratch-built, the number of construction hours rose astronomically. Streeper, like Hinz, didn't keep a log and, furthermore, didn't even want to know the total number of hours for fear that it would scare him too much. He, too, worked almost every day, with a halt now and then simply to get away and do something else for a while.

The basic island structure was 1/16" thick aircraft plywood with pine spacers holding the sides apart. Bridge decks, deckhouses, flying



Substructure of the forward flight deck and fo'c'sle takes shape. The anti-torpedo blister addition to the hull is clearly visible here.

Overall size of the huge model is evident in this photo.



Substructure of aft flight deck and fantail. Ah yes, "Third Class Seamen muster at 1700 aft of the fantail!"

bridge, galleries, and the top of the stack were styrene. Railings, overhead speakers, mast, and radar were all soldered up from brass wire, tube, or shapes (Special Shapes, P.O. Box 487-R, Romeoville, Illinois 60441). After the basic structure was completed, Streeper placed the island on a stand and began detailing from the bottom up, port and starboard. Large fittings like hatches went on first, along with the major structural braces under protruding platforms and under the lopsided bridge (there was more of it on the inside of the island than on the outside). Seven or eight curved supports were required in each instance.

In order not to omit a detail, Streeper would jot notes to himself as he began work on a specific area. Naturally, the plans didn't show everything and he relied heavily on the three pictorial war diaries kept by Enterprise during World War II, and now housed in the Washington Navy Yard. Each page of those diaries contained two 8x10 black and white photos. Streeper would bring his camera and click merrily away. (Another photographic source was Bill Barr, former photographer aboard Enterprise.) Prior to commencing construction on an area, Streeper would consult his pictures to absorb as much information as he could.

Each trip to the Navy Yard yielded some gem. One day he stumbled across a view of the smoke watch chair. At first Streeper didn't recognize what he was looking at, then slowly realized that the floor of the platform was recessed. The one he'd made for the model wasn't. Although he knew probably nobody would notice it, the mistake kept grating on him until he tore the platform apart and built a correct floor.

One trouble spot was a big notch in front of the smokestack. Photos showed only vague images of what was in there and other research turned up nothing. Because the area would be covered quickly by other details, Streeper made an educated interpretation of what the pipes looked like and left it at that.

The eight sky lookout chairs on the outer (starboard) side of the island gave Streeper the worst grief. Although not particularly complicated, they were so small that he couldn't figure out how to make them. Once he did get a handle on what to do, each chair had to be duplicated by hand because he lacked mold-making facilities. Just this one project took untold hours and, upon completion, didn't look as if he'd done much of anything.

Then there was the antenna that rose all the way up the mast. It involved drilling numerous holes in 1/32" diameter brass wire about 1/16" apart. He finally managed to get the holes in the straight pieces, but always broke the curved portion when he tried bending it to shape. This experience opened a whole new vista in the meaning of frustration.

Another time-consuming exercise was the guns. Streeper had to assemble eight H-R Products' 5"/.38-caliber gun kits plus a spare in case one was dropped. Each gun required seven to eight hours to complete, then practically another entire day was spent painting the lot.

Streeper found making the radar screens and antennae with their bases of either styrene or wood the most fun. Screens were fashioned from HO-gauge railroad material. Another enjoyable project was the big speakers mounted on the superstructure. Streeper took a piece of brass tube, cut it to length, then tapered it on a tapered reamer to make the center cone. A little electronics box went on the back.

Like everyone who has contributed

continued on page 27

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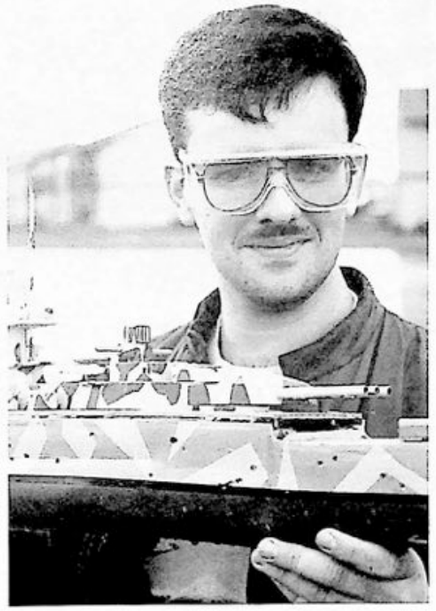
SCUTTLE *Continued from page 10*

sion, the idea of using a navy to improve a nation's standing was not unnatural to them. The Kaiser, after all, was a relative of the English Royal Family and had the same enthusiasm for naval matters that the Royal Family did. He enjoyed keeping abreast of developments in the Royal Navy and even held an honorary RN rank of Admiral of the Fleet!

Mr. Van Der Vat, however, is from Holland and the events leading up to the First World War look quite different from that vantage point. One could imagine the concerns of citizens of a small nation located directly between the world's most powerful nation on land (Germany) and the world's most powerful nation on the seas (Great Britain) when they seem to be on a collision course! The author lays out the events in an accurate and comprehensive manner but leaves little doubt about his feelings for the Kaiser. Van Der Vat strips away the logic of the German leader's policies to reveal a political recklessness bordering on insanity. How much of that image is fair can be assessed by the reader as Van Der Vat makes his case with supporting evidence. The image of the rising power of Imperial Germany as a dangerous and misguided force in the world serves the author well in portraying the birth of a fleet that ended at Scapa along with its creator's ambitions.

Reading this book a few years ago would have seemed a simple review of well-traveled facts, but in light of recent events in Europe this may well be a good time to look at it more closely. Germany has been fairly static during the last forty-five years as a legacy of the World War Period, but before that it was no stranger to internal and external fighting. In 1845, Otto Von Bismark united the diverse German-speaking states into Prussia, which conducted successful wars against Denmark, Austria, and France. The Franco-Prussian war clearly showed the strength of the Prussian Army with the occupation of Paris and the capture of Napoleon III! Germany had become the most powerful country in Europe in a little over two decades and was proclaimed a unified nation under Kaiser Wilhelm I in 1871 (after our Civil War!).

Germany enjoyed peace for two decades under the first Kaiser, but in the next two decades Wilhelm II steered his nation into the First World War. The collapse of Germany at the



This battlers model of the DKM Lutzow has just been sunk! Don't worry about the BB holes in the hull, they were all given permanent repairs in just a few minutes time.

Have You

Taken any good SALVOS lately?

Discover the exciting new sport/hobby of RADIO CONTROLLED MODEL WARSHIP COMBAT, where your 1/144 scale model warship will battle other warships for control of the sea. Each model is armed with low power BB cannons that you control by radio to shoot holes in the soft skin of your opponents hull. If you show superior gunnery skill, you may even manage to sink the enemy, but BEWARE!, he is trying his best to sink YOU!!!

These models do not suffer any permanent damage from this seemingly destructive treatment. A warship model may battle and be repaired many times in a day, even if it gets sunk.

Whether you just battle in one on one engagements or as a member of a large fleet that is taking on another fleet, RADIO CONTROLLED WARSHIP COMBAT will give you a rush and thrill that cannot be matched by any other radio controlled model sport.

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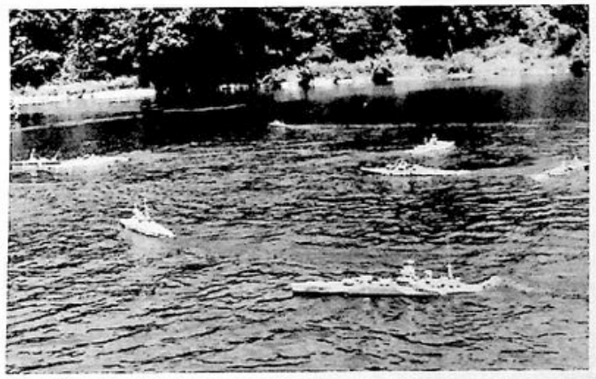
Available Sept. 1, 1989 will be exciting videotapes of recent R/C warship combat contests. These tapes (available in VHS only) will have warship model closeups, interviews with battlers, and lots of combat footage of ships exchanging BB salvos. These tapes will be available for rent or purchase.



The battle rages. Ships of the Allied and Axis fleets try to drive each other beneath the waves in order to secure control of the sea.

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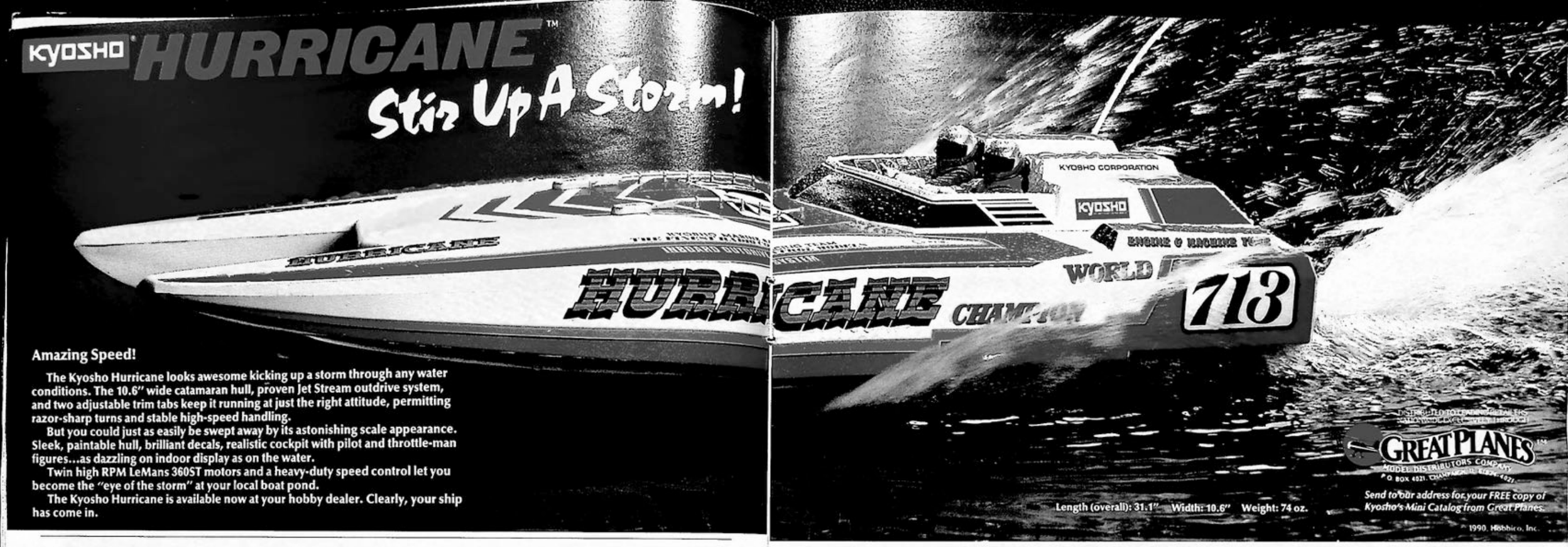


Amazing Speed!

The Kyosho Hurricane looks awesome kicking up a storm through any water conditions. The 10.6" wide catamaran hull, proven Jet Stream outdrive system, and two adjustable trim tabs keep it running at just the right attitude, permitting razor-sharp turns and stable high-speed handling.

But you could just as easily be swept away by its astonishing scale appearance. Sleek, paintable hull, brilliant decals, realistic cockpit with pilot and throttle-man figures...as dazzling on indoor display as on the water.

Twin high RPM LeMans 360ST motors and a heavy-duty speed control let you become the "eye of the storm" at your local boat pond.

The Kyosho Hurricane is available now at your hobby dealer. Clearly, your ship has come in.

end of the war was marked by a socialist revolution which lasted just long enough to complicate the drawn out Armistice arrangements. For another two decades, Germany staggered along under reparations and treaty limits until the rise of National Socialism overthrew the parliamentary government and launched the nation into yet another war.

It can be seen that Germany is a nation with the strength to survive calamities and build itself up quickly but it isn't the strength of the German nation that challenges our thinking. The era of World Wars is truly past and there is little chance of a new united Germany being carried to war again by a future dictator. The challenge is the speed with which changes took place in Germany and indeed the speed of change in European politics as a whole before the World Wars. We are out of practice in observing European events and may not be sensitive to trends in an unfrozen Europe. The US is entering into a Post-Cold War era which has already been characterized as 'Quasi-isolationist.' The characterization combines diplomatic isolationism with economic globalism. This attitude sounds suspiciously like our posture between the World Wars, although today's pervasive communication technology will probably avoid our earlier tendency to bury our heads in the sand.

The Grand Scuttle portrays a world in which the political realities and technical developments changed faster than established perceptions could accommodate. The lessons of confused and conflicting ideas accompanied by the tremendous waste of a World War provide a warning to us in our times. •

STORE *Continued from page 18*

hydro (less engine, radio, epoxy, and paint). Included are adjustable outboard motor mount, steering and throttle cable set, servo savers, stainless steel prop, fuel line, antenna, fuel tank, radio switch mount, and clear plastic tape to seal the radio hatch cover.

The Mod Engine Kit includes materials and instructions for improving performance of the K&B 7.5 outboard engine that can add 10 to 15 mph to the top speed of the Spitfire or most any other racing boat powered by the engine. The Mod Engine Kit requires some drilling, grinding, and filing on the engine. No piston or sleeve modification is required. Kit includes an exhaust throttle, high-performance venturi and needle valve assembly, pressure fitting, and stainless steel rudder. Complete instructions with photos are included.

Suggested retail prices of the above items are: Spitfire II, $249.95; Accessory Kit, $99.95; Mod Engine Kit, $59.95. Contact Terry Prather at the above address or phone for more information, and tell him you read about it in *U.S. Boat & Ship Modeler*... even if you read about it somewhere else! •

ESSEX *Continued from page 10*

The 32-Gun Frigate Essex has to be the most complete and authoritative compilation of data to have been assembled on this vessel since *The Essex Papers*. It is a must for anyone wishing to model Essex or to enhance his knowledge of 18th century American shipbuilding. •

ENTERPRISE *Continued from page 23*

to Project Enterprise, Streeper didn't think completing his part would take as long as it actually did. However, he enjoyed the opportunity of working in a large scale. Prior to this, the biggest models he'd ever built were 3/8" (1:32) scale PT-boats.

One man who was a godsend to the venture was Cy Broman, owner of H-R Products (P.O. Box 67, McHenry, Illinois 60050), a firm specializing in 1:72 scale warship fittings. He agreed to develop a master 5"/.38-caliber open gun, made a mold, and did the casting in white lead (lead-zinc alloy). Cy also provided different sizes of searchlights, target identifiers, Mk 51 directors, screens for the Mk 57 directors, firehoses, 40mm ammo clips for the gun tubs, ready ammo boxes, net clusters, watertight doors, and some speakers. In all, about 5% of the fittings on the model came from commercial sources. Ladders with diamond treads were supplied by Century Foundry & Metal Works (P.O. Box 177, North Hollywood, California 91603), and stanchions came from A.J. Fisher (1002 Etowah Avenue, Royal Oak, Michigan 48067). One goal Swickley sought for Project Enterprise was to make it a national effort at the grass roots level. As word of the venture spread, more and more modelers offered their services until over 25 men plus three clubs were involved. Of major concern to Swickley was how to maintain consistency of workmanship. He finally hit upon the idea of giving each unknown volunteer a component to build as a test of his skills. Those modelers with established reputations were shoo-ins. Little by little the work was assigned. Even Swickley, besides calling everyone roughly once a week to see how things were going and ask if they needed anything, got involved at the workbench level. He made the bow 40mm gun tub, several Mk 51 director tubs, four 40mm tubs for the forward gallery decks, paravanes, and life raft stacks.

Jim Barnes, of Neenah, Wisconsin, modeled the 20mm guns—all 50 of them. Dana McCalip, from Chicago, Illinois, assembled the eight twin and six quadruple 40mm Bofor mounts. Beginning with the basic H-R Products kit, he added coolant pumps and hoses, rounds in the loading mechanism on two of the mounts, and photo-etched sights. These Bofors were the first components to be delivered to Swickley. The Mk 51 gun directors were completed by Frank Dummann, of Mayville, Wisconsin.

Two aircraft towing tractors (mules) were handed in by Hal Otterbach, Madison, Wisconsin. The large crane just aft of the island came together under the hands of Ed Urbanczyk, of Chicago. Don Grajek, from Roselle, Illinois, made the two cranes located port and starboard aft on the hangar deck. "Tilly," the large mobile crane that moved damaged aircraft on the flight deck, was created by Ron Blackledge, of Horicon, Wisconsin. James Welch, of Anderson, Indiana, built the two 26-foot motor whaleboats.

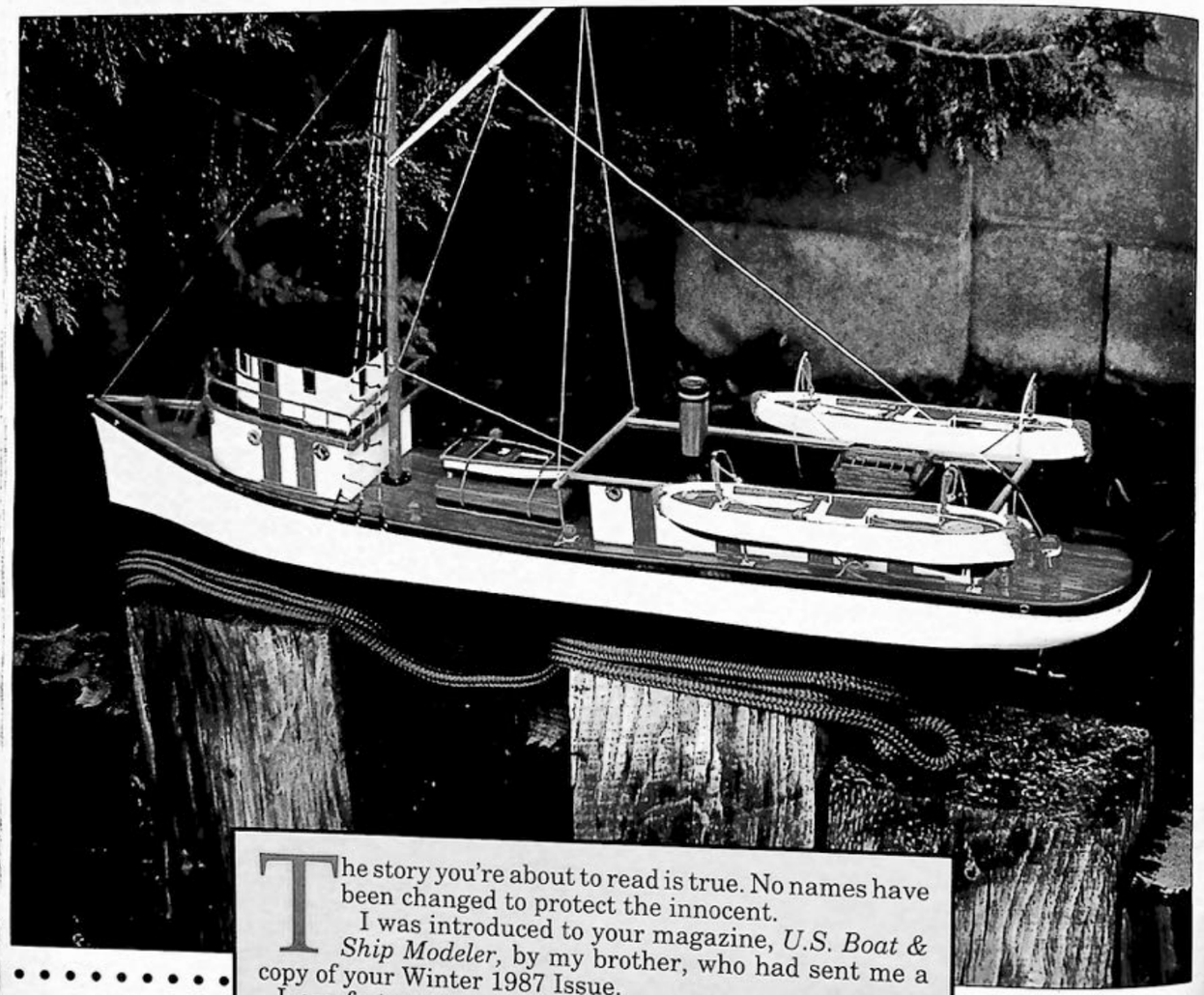
Custom flags were donated by Model Graphics (380 Oscawana Lake Road, Putnam Valley, New York 10579). Owner-artist, Gary Jakubek, delivered the commission pennant, 48 star ensign, NIQM signal flags, and the FOX flag. Then he went on to make special decals for the aircraft.

Air Group Ten, the air wing launched for the Great Marianas Turkey Shoot, was built by the Richard I. Bong Chapter, IPMS, under the leadership of Paul Boyer, from

continued on page 42

BY KEN KILLEEN

VALERIE K



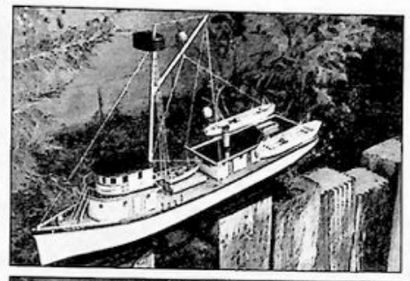
The story you're about to read is true. No names have been changed to protect the innocent.

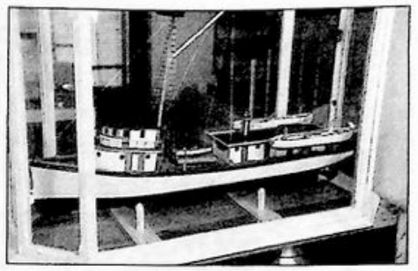
I was introduced to your magazine, *U.S. Boat & Ship Modeler,* by my brother, who had sent me a copy of your Winter 1987 Issue.

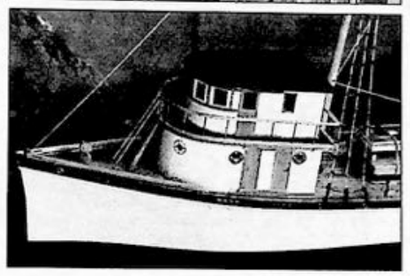
I am forty one years old and am incarcerated in the United States Penitentiary at Lompoc, California, serving a fifteen year sentence for the charge of bank robbery. And, if it makes any difference, I'm not here by mistake. Getting back to my story, your cover story, *The Bunker Boat,* caught my eye. I was immediately propelled backwards some thirty odd years to a time when it was safe to eat the Steamer and Cherrystone clams that were so much in abundance on Long Island Sound shores.

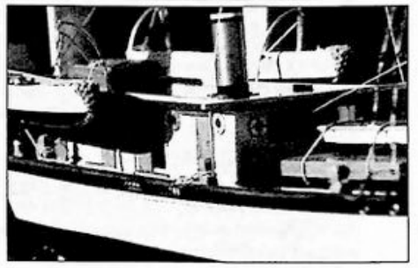
While fishing off the family boat I remembered this magnificent fishing fleet. My father told me their purpose and of the uproar of the local homeowners who complained about the odor of the fish when the fleet was off-loading their catch of "Moss Bunkers" at the fishery. It would seem that this fleet of fishing boats was as unwelcome as ants at a picnic. I enjoyed watching these weathered fishermen and respected the boats that brought home their paychecks.

The model article interested me very much and I was surprised to find plans available. Having never once attempted woodworking (although, over the years I had built perhaps one hundred plastic models; the largest and most complicated being "The Constitution"), I thought I would give it a try. I sent for the plans and received them in November of 1987.









Having never read a shipbuilding plan before, I was very confused and reluctantly admit, a little disappointed in myself for not being able to understand them fully. What had started as a brainstorm was rapidly turning into a light drizzle. After reading the instructions over and over and studying the plans in my cell after "lights out," a half hour a night, well, in a month I felt confident enough to start this project. Only then did I realize how much trouble this was going to be.

We do have a hobby shop here, but being a maximum security prison, the tool situation leaves something to be desired. There is some woodworking, leather, and painting available, providing we furnish the wood, leather, and paint. The power tools consist of a ten-inch table saw, a router, and a drill press left over from when they built the Monitor.

I was determined to overcome all obstacles. Sandpaper and single-edge razor blades were to become the primary tools of this undertaking. The table saw was handy when cutting the eighteen inch strips of mahogany (the wood was acquired from a picture frame from the Warden's office and replaced with one of pine, doctored with mahogany stain), which I used for the hull planks and deck. Cherry wood and walnut were used sparingly on the gunnels and hawsers. The davits were fabricated from brazing rod and the net boats carved from 2 x 4s. Their floorboards are mahogany. The wheel house is cherry wood, the pilot house windows are of glass, acquired from the prison hospital and lab specimens.

The fine detail in the wheelhouse (speed throttle and forward, neutral, and reverse arms) were provided from the Dental Clinic and were made from tooth clasps. The prop was carved in wax, inserted in plaster, which was then heated to remove the wax. Then, through a handy piece of machinery, ticonium was melted and poured into the mold much the same way a brass prop would be made.

All the portholes are lacquer-dipped and each has four holes drilled and eyeglass screws that were provided by fellow convicts for a look of authenticity. All of the pulleys were carved out of pine and drilled to accept the lowering ropes for the boats. The cabin handles were stamped with a leather tool and the cables are stainless steel wire, minus the insulation. The stern cabin has dual copper piping to pump out the holds. The stack was cut from a fifteen foot long copper pipe, flared, sealed, and painted. The decks themselves have twenty five coats of lacquer, each hand rubbed.

Due to the lack of tools, every hull plank was tacked down and glued while vise-grips were all that was needed to hold the bow planks to the stem. After each plank was secured and dried, the tacks were removed and used over and over until the plank on the frame was complete.

I must add at this point that I sent a letter to my family explaining the progress I had made with the plans, though much of the initial work was

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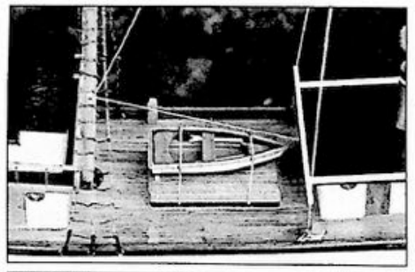
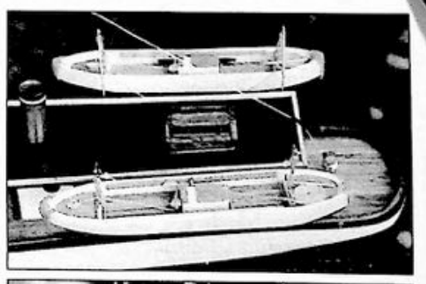
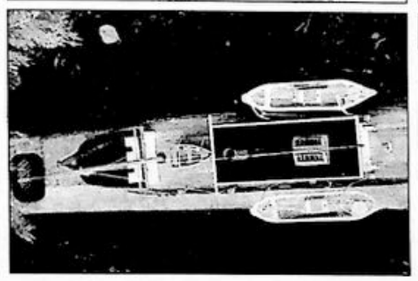
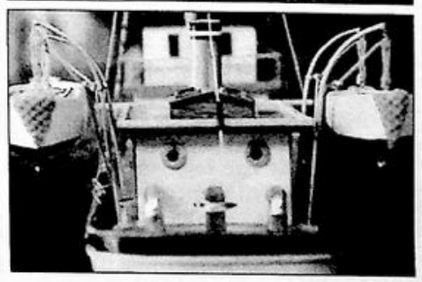








RADIO WAVES

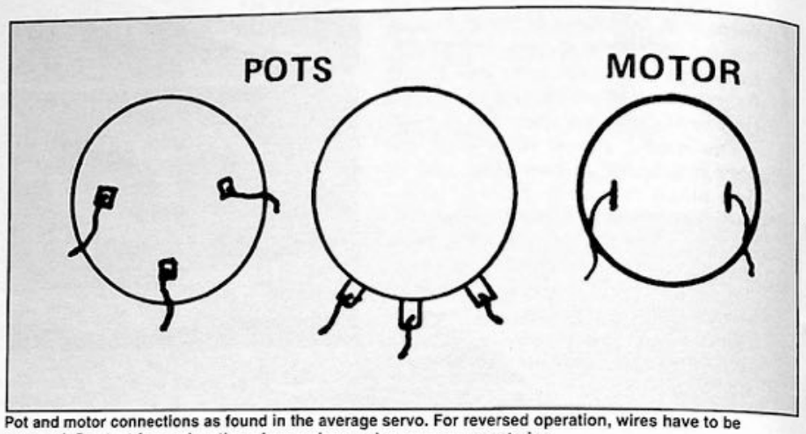
BY ELOY MAREZ

Gadgets and gismos! There are some phrases that I refuse to use in my articles! For example, you will never read any material of mine entitled "The care and feeding of... ." Neither will you find me referring to "bells and whistles." But since we have to use titles, I guess I'll have to call this month's offering, "Gadgets and Gizmos." OK, so it isn't 100% original either, but at least you haven't read it in every other magazine you've picked up this month.

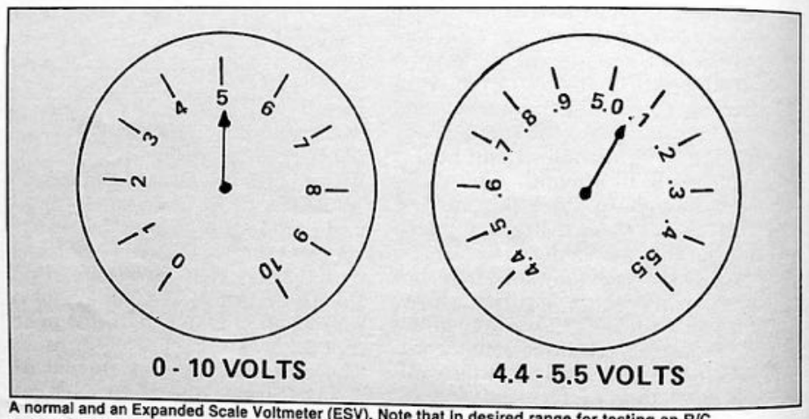
This title is appropriate, as I have for you a potpourri of circuits and ideas that I have used and know are interesting and useful to those of you who think of things electronic as more than a necessary evil. I have decided to present these items based on the unexpectedly heavy interest in my offer of a charger circuit in our last issue. So far I've had to make two trips to my local copy shop—I hope all of you who asked for the circuit have received yours and have been successful with the project.

An adjustable heat soldering iron trick is my first offering, a handy item indeed when you only have one iron, which is fine for motor and battery wiring, but too hot for printed circuit board work. Simply installing a diode in series with one of the AC lines will reduce the heat down to approximately 50%. In theory, what happens is that the single diode, correctly termed a half-wave rectifier, passes only one cycle of the incoming AC, thus the average power is roughly halved.

In practice, the most convenient way to add this diode is to install it in the AC cord, and for normal heat, bypass it with a switch. For this you will need an "in-line" switch from your local hardware store. These are the switches that install right on the electrical wire, and are most often found on lamps. They come in small rectangular shapes and larger egg shaped types—get the larger one. An easily obtainable Radio Shack No. 276-1143 200-volt 3-amp diode will do the job with a good safety margin. The diode can be installed right inside the switch, per the accompanying diagram. As you will notice, when the switch is open, the diode is in the circuit, and the iron is on its low heat position. When the switch is closed, it shorts across the diode, switching the iron to high heat.



Pot and motor connections as found in the average servo. For reversed operation, wires have to be reversed. See text for explanation of procedure and necessary recentering.



A normal and an Expanded Scale Voltmeter (ESV). Note that in desired range for testing an R/C system battery, a far greater degree of accuracy is obtainable with the ESV.

As far as switching position, I would recommend that the switch be installed so that its forward position, towards the iron, is "high"; forward being the traditional movement for all controls that increase some sort of action.

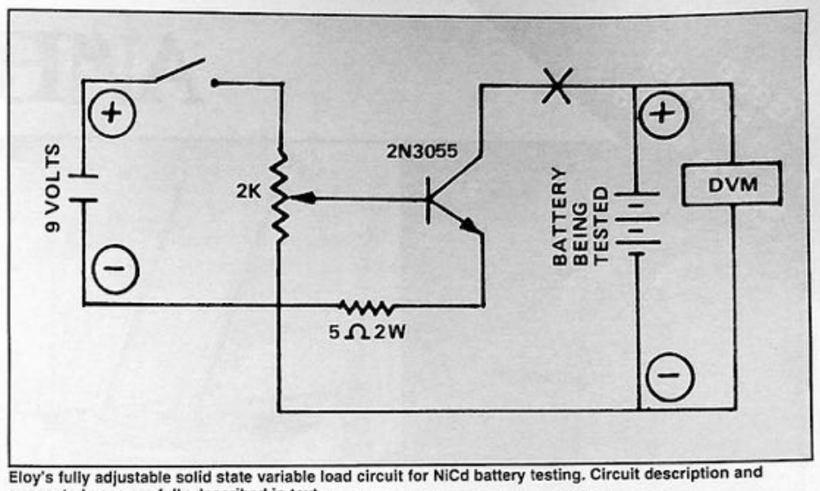
Ni-Cd battery testing is a popular subject, and the Expanded Scale Voltmeter (ESV) seems to be the preferred way of doing so. I have never been convinced that this is a safe method of determining the charge remaining in a NiCd pack, as the discharge curve is much too shallow. It isn't until the battery is almost down to the critical voltage before a pronounced drop in voltage takes place. However, there is another school of thought on that, and most definitely the ESV method of testing batteries can pinpoint defective cells or packs, especially when the ESV also places a heavy current load on the battery.

Before going any further, I would like to clarify a point that I know is not clear to most all owners of ESVs. The Expanded Scale Voltmeter is an instrument designed to read voltage over a critical range only, say from 4.4 to 5.4 volts. Any voltage lower than that will not cause a reading at all; of course any higher will peg the needle on the right side. What we are looking for is maximum readability and accuracy over that particular range, and since the one volt is spread out over all of the meter face, the accuracy is greater than one were reading it on a small portion of a scale that reads say 0 to 10 volts. This is an ESV—and it does not place a load on the battery, other than the resistance of the meter movement itself, which is too high to be of much consequence.

In a good ESV designed for R/C battery testing, a low value resistor is included to load the battery quite heavily, the recommended value being one half of the battery capacity. In other words, a 500 mAH pack should be loaded to 250 milliamps. For a four-cell pack, a 20-ohm two-watt unit will do the job. For an eight-cell transmitter battery, a 40-ohm five-watt resistor is called for.

This is fine for the common batteries, but what about those of smaller or larger capacity? And of more or less cells? And why not use that digital voltmeter which you have treated yourself to; it certainly has the necessary accuracy! The answer is the relatively simple circuit shown; a variable electronic load which you can adjust to any desired load for any number of cells. In theory, the transistor is being used as a variable resistor, which you adjust by varying the base current which is supplied by the two nine-volt batteries. As far as those batteries are concerned, I don't often say this, but in this case it is justified—buy the cheapest ones you can find. And don't worry about their life, unless you forget and leave the unit on, one set will last almost indefinitely.

You can assemble everything into one of the many plastic cases available at Radio Shack and other electronic suppliers, install a knob on the pot and with a milliameter temporarily installed at the 'X', make calibration marks for the different packs you might be testing. The transistor should be mounted on the metal lid of the box to provide heat sinking.



Eloy's fully adjustable solid state variable load circuit for NiCd battery testing. Circuit description and suggested uses are fully described in text.

Why not just use a regular potentiometer, you say? Well, you could, but you will find that a low resistance pot of the necessary wattage is always going to be a wirewound unit. Being composed of a relatively small number of turns of wire, it is coarse in its adjustment and cannot be set with the kind of precision that I like. Anyway, this transistorized unit is not that expensive, considering its application and that it is insurance for a much higher priced object.

Blinking lights always add a certain amount of realism to any scale model. Since LEDs are now available in so many colors, there are many easy ways to install such lights in any appropriate combination. They are not particularly hard on batteries, but there is an easy way to not only cut down the current drain but to make them blink with the same circuit.

It involves the use of an LM3909 Integrated Circuit, one designed specifically for this purpose. The LM3909 includes a low frequency oscillator and all other necessary components optimized for low power drain and low voltage operation. The external capacitor shown provides a voltage boost so that the LED is actually hit with over two volts when only a 1.5 volt battery is used for primary power. This is one of the few cases where you almost get something for nothing—battery drain is around 0.5

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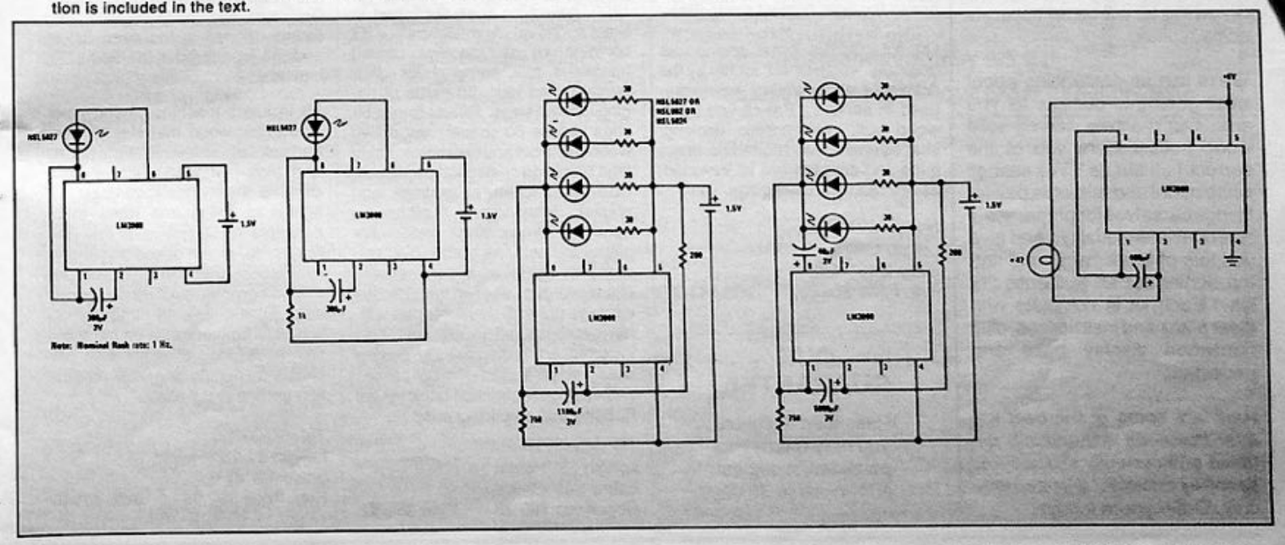
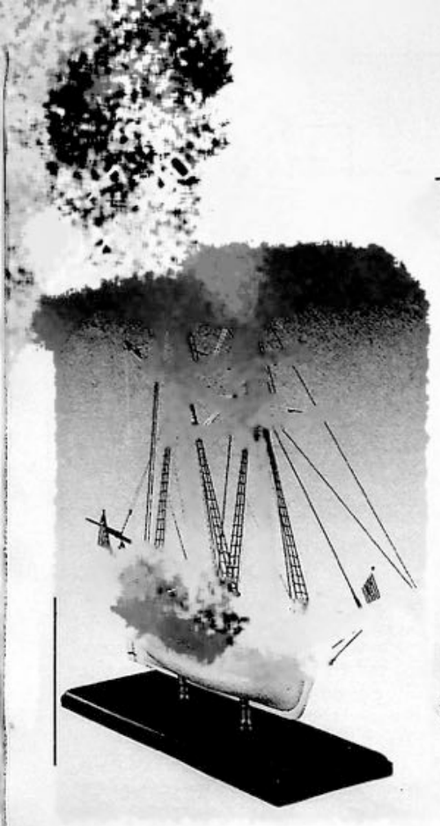
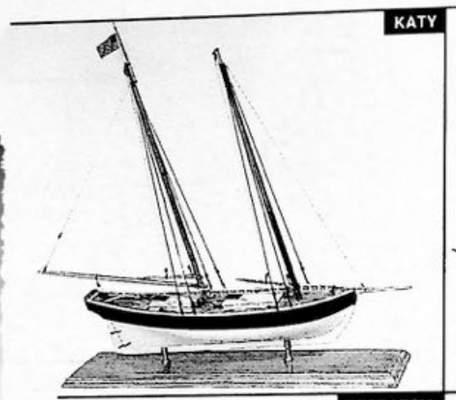
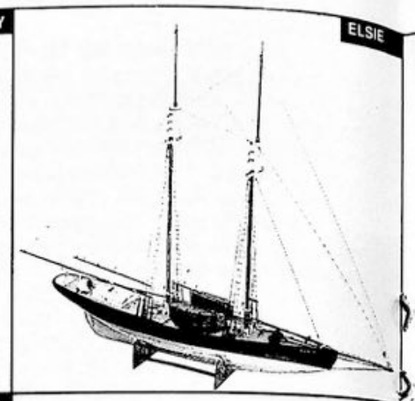
LM3909: Some simple circuits for blinking lights using the LM3909 IC, which is designed specifically for low power drain applications. Complete information is included in the text.



A "HULL" OF A SALE ON







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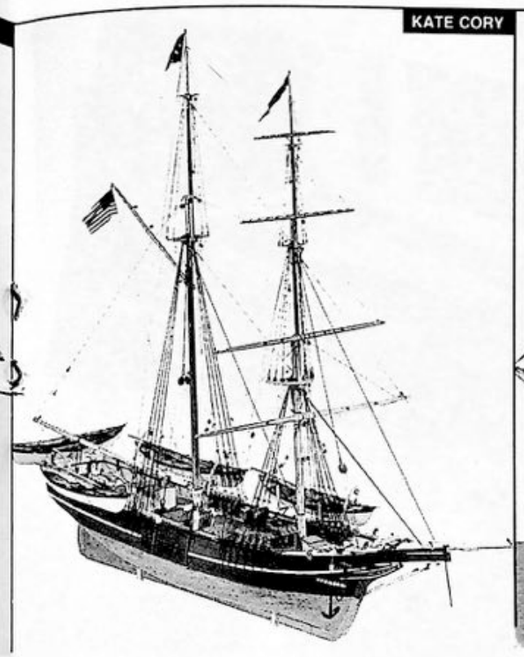

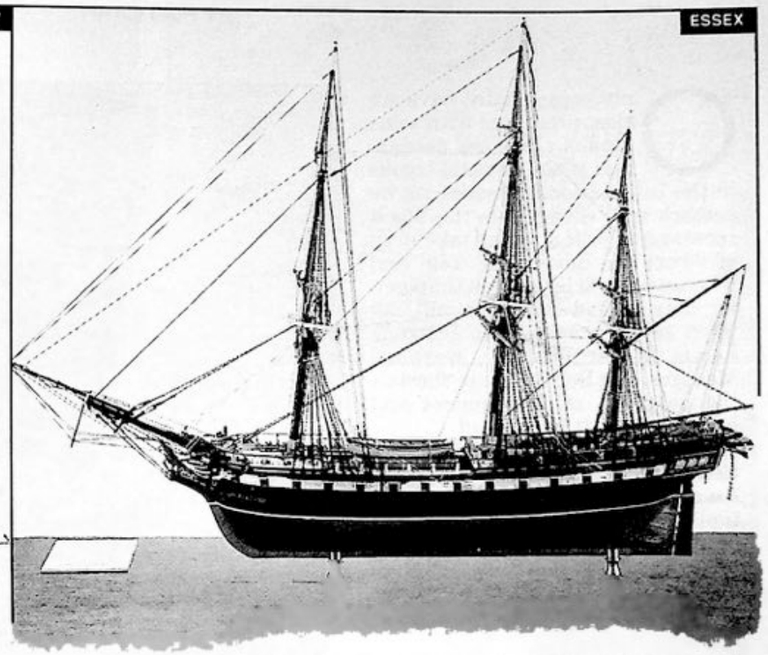

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Built in 1910 at Essex, Mass. by Arthur D. Story, the *Elsie* was designed with a semi-knockabout schooner rig, reflecting the influence of the safer, but costlier knockabout schooners. After her 1921 race with the Canadian schooner *Bluenose*, she was outfitted with power. Under Canadian ownership in 1935, her seams opened at the stem rabbet and she foundered in the Gulf of St. Lawrence.

Kit includes machine-carved hardwood hull, wood material for deck houses, furniture, keel, stem, rudder and trim. Shaped spars, scored decking, 4 dory nests, cordage and fittings of brass and white metal complete the kit. Plans by Erik A.R. Ronnberg, Jr. are based on surveys by Chapelle and an exhaustive study of photographs and contemporary descriptions. The 45 page instruction book concentrates on modeling techniques for 1/8" scale, with emphasis on rigging and its simplification for this small scale.

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STRICTLY SAIL

BY ROD CARR

Only occasionally have we been presented with some kind of summary description of activity and trends in the International Classes. As we embark on a voyage into the '90s it seems sensible to stop and take stock of where we have come from and where we might be going in the popular Marblehead class. We will call upon such luminaries as Priest & Lewis, Roger Stollery, Gerhard Mentges, and Bob Sterne to show us the past line of development and predict where it might lead.

Before we begin, it must be made clear to American readers that the American Model Yachting Association does not accept the International Marblehead Rule. AMYA has a written policy of isolation from the International Yacht Racing Union—Model Yacht Racing Division (IYRU-MYRD) which prevents American skippers from configuring their boats in compliance with the rules accepted by all other countries taking part in model yachting around the world. The reason presented for such shortsightedness is that "we want to retain control of the class." Control AMYA may have, but by so demanding it has effectively isolated American skippers from the mainstream of development in the class. This position has garnered for American skippers a very poor reputation in the international community. We are seen as isolationists, unwilling to abide by world class rules. It has even been hinted that we are possibly just not able to hold our own in international competition and therefore have opted to hide behind our own borders!

In addition, such an ill-advised policy perpetuates an AMYA rule-making procedure which totally ignores the welfare of the great majority of its skippers. The outmoded AMYA procedure allows only two skippers to propose rule changes without consultation with their fellows, discussion with the Class Secretary. There is no opportunity for a reasoned determination that the proposed change is good or bad for the class. You and I, all by ourselves, could put a motion on the ballot to paint all M-s pink! What mischief.

(Inset) KMS "Cobra" multi-hull, 48-inch long main hull, dagger board and rudder. Available through KIP Marketing, 33 Yorke Gardens, Reigate RH2 9HQ England. Could this be a new class? (Right) Note the wake in light air. No lead ballast to drag along!

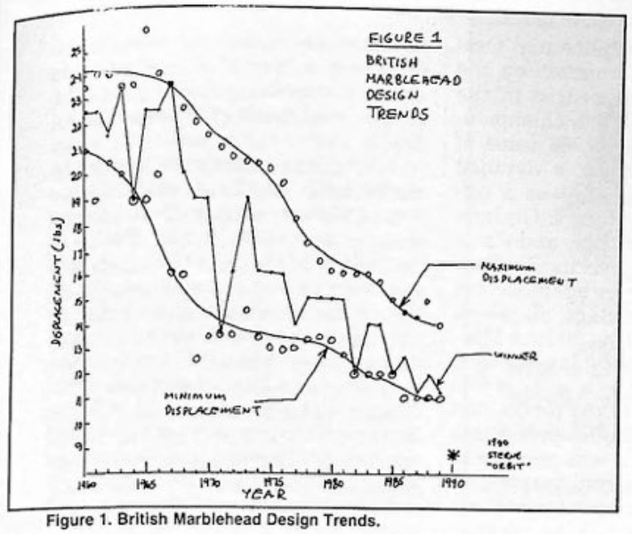

Figure 1. British Marblehead Design Trends.

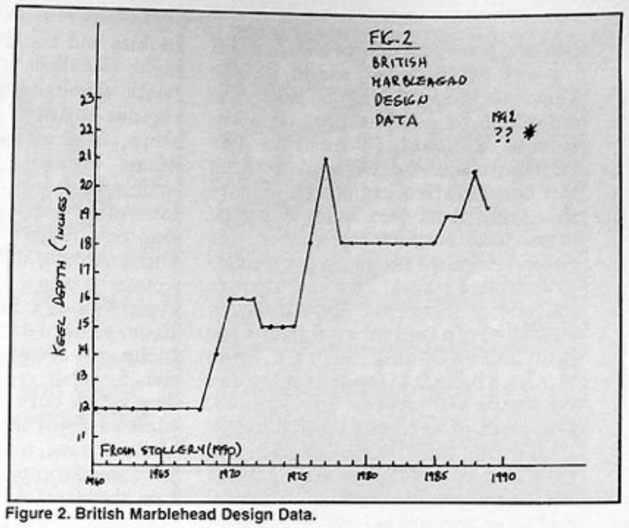

Figure 2. British Marblehead Design Data.

Having recently taken a three year side trip into the arcane world of rule writing with the International East Coast 12 Meter Class, I can say that the greatest majority of the class rules that have been authored by Americans are of dubious quality. Rule writing is simultaneously an art and a science. Amateurs who try their hand inevitably produce amateurish rules. By working with knowledgeable and experienced people from many countries, IYRU-MYRD is able to produce International Class rules which are consistent and based on many years experience with yacht rating as found in the parent body IYRU. Why AMYA officers would think that there was something to be lost by tapping into this experienced resource is beyond me. The potential benefits seem obvious!

Even worse than perpetuating unproductive procedural rules, I have obtained unimpeachable evidence that the current AMYA administration has interfered in the publication of the Quarterly Newsletter in a manner that has actually violated the 1st Amendment rights of the members for a free press. They actually forbade the publication of letters to the editor which were critical of how they were managing the organization. Where this shameful practice will lead I don't know, but I would imagine that replacement of this misguided pack of scoundrels with a new group that protects freedom of the press would be a good first step. Apparently it is now OK to tell Gorbachev what you think of him, but one can no longer comment on the foolish policies of the AMYA President in the AMYA Quarterly! If I put on my red satin turban, and assume the identity of "THE GREAT CARNAK" (with apologies to Johnny Carson), I predict that the pendulum is swinging in the other direction and a new slate of AMYA officers and directors will set the organization on a wiser and more productive course. You heard it here, first!

Having said all that, let us proceed without further reference or concern for the AMYA's shortsighted policy. No organization has the power to truly get in the way of individual skippers and our enjoyment of the sport. At most, such interference is a minor and temporary embarrassment to the supporters of the hobby.

In preparing this article, I was given so much excellent support by the various designers that it grew too big for printing all at once. I have prepared it in two installments, with the second to be published in the next issue of *U.S.B & SM*. My sincere thanks to all the contributors. This is what model yachting is all about!

MARBLEHEAD CLASS DESIGN TRENDS—1990 AND BEYOND

As most folks know, the Marblehead class was a purely American invention. In 1930, Roy Clough, of Marblehead, Massachusetts, developed a 50-inch long boat with a length tolerance of plus/minus a quarter of an inch and with 800 square inches of measured sail area. The jib hoist was to be no greater than 80% of the height of the total sail plan and at the midbody at the garboard, where the hull blends into the keel, a one inch radius minimum was set. The class was established as a means of filling the gap between the existing classes being sailed at the time. It also was an answer to the complicated formula that controlled the design of the International A Class and International 6 Meter. To develop a boat in these classes, one almost had to be a naval architect by training, whereas the simple Marblehead rule was intended to encourage amateur design and building.

PRIEST AND LEWIS (1956)

Comments by Dick Priest and John Lewis in their classic book, *Model Racing Yachts,* provide some interesting insight into the early applications of the rule in England. I quote:

"As with all new rating rules, the first problem confronting the designers to the brand new rule was just how big to make the boats? It is usual that the original boats to all new rating rules are too small, and because of this are completely outclassed in a couple of years. The Marblehead Class was no exception. In fact, not so long ago the writer met a gentleman who had recently come across Marblehead K.1 (Note: The first Marblehead registered with the British Model Yachting Association). According to his account the boat was like a small edition of a 10-rater and had about a 36-inch waterline, drawn out in overhangs fore and aft to give the overall length of 50 inches. Her displacement was in the region of 12 pounds... It did not take long for designers to realize that Marblehead K.1 was too small. At the same time, however, it must be remembered that between 1937 and the outbreak of the war there was no Terylene (Note: Dacron to us) sails... and sail aspect ratios did not go to present day lim-

its. A typical example of a successful prewar Marblehead would be the Edwards designed MYSTICO. She was 16 lb. in displacement on a waterline of about 45 inches... The American has always been anything but conservative in his outlook and this trend was very evident in the immediate postwar designs in this class. They experimented in the wildest possible range, from sail plans to keel forms. Some of the latter even consisted of a thin fin attached to the hull halfway along the run. From this lead ballast extended forward in the shape of a torpedo. Incidentally, this form of keel was later banned. Hull forms were, in some cases, terribly slim with deep vee sections and used every single fraction of the 50 inches as waterline length. The hull forms in many cases were quite unbalanced.

"Experiments in the British Isles were not so `wild,' but did reach a maximum in a 31-pound boat developed for use in the northern winds by a Mr. Bostock. The early wisdom said that Marbleheads should have a displacement of between 16 and 30 pounds."

Two things should be noted from this discussion. First, early Marbleheads under the influence of short rigs had displacements down toward the lighter end of the spectrum. K.1 was a 12 pound boat, a weight that would have put it only 3/4 of a pound heavier than the boat which won the 1989 British Championships. Second, in the period from 1930-1950, the Americans occupied a position of influence in the design and sailing of the Marbleheads. We had a reputation for innovation, and a demonstrated willingness to contribute to the international yachting scene.

The preceding discussion dealt with free sailed models, R/C was not yet being applied to sailing models. The designs and the displacements were calculated to provide boats that were put on course, and then were supposed to stay on that course. Longitudinal stability, the ability to maintain a direction under a constant wind, was a primary design goal. Substantial attention was paid to hull form and appendages such as skegs and keels which were quite long in the for and aft direction.

STOLLERY, BANTOCK AND DICKS (1985-86)

The next major statement about Marblehead class design occurred well after the R/C era was underway. Roger Stollery, of England, has been involved with the class since the early 1960s, and over the ensuing period he has had the discipline and foresight to collect information on the boats which have appeared in the regular series of British championships. In the March 1986 issue of *Model Yachting News,* a detailed article appeared which was a collaboration between Mssrs. Graham Bantock, Roger Stollery, and Chris Dicks. Among the novel items which appeared was a clever adaptation of typical design drawings, in which Roger started drawing 50-inch Marblehead hulls with the longitudinal axis foreshortened by a scale of 1:5. The subtle curves of the profile and plan views of the hulls sprang into obvious view, and it was possible to produce a complete hull drawing on two sheets of A4 paper (something very near the 8-1/2 x 11 we use here in the states).

Accompanying the article was data on the boats which had been taking part in the British M-Class Championships from 1960 to 1985. Roger has recently updated this information to include 1989 and all the data is provided here as Figure 1. Notice that the boundaries of the envelope between maximum and minimum displacement have been smoothed by some arbitrary curve fitting. It is the trend that is of interest here, though individual data points have been plotted for reference.

Displacements of individual boats in each regatta is marked. Typically a range of displacements of five to six pounds is represented within the fleet. In general, one can conclude from the plot that when the occasional heavy air regattas have occurred, heavier than average boats have won. In lighter air regattas, it is the lightweight boats that have done well... notwithstanding the sometimes overriding influence of the skipper in handling the boat in the conditions faced. Previous comments published in the AMYA Quarterly by Karl Kirkman, designer of the BONE series, have explained the tradeoff between momentum and acceleration in favor of the lighter displacement.

Also included is another plot (Figure 2) that shows the progression of keel depths that has been observed in the British Championships. The trend is obvious, and the depth to be experienced in the next few years is precisely as predicted by Bob Sterne in the second installment of this article.

Roger's 1985 discussion did not point toward a continually decreasing displacement with a steady deepening of the keel fin. Both he and Graham emphasized the importance of taking a "systems" approach to design and building, feeling that the proper integration of hull form, keel depth and weight, and sail plan handling were required. Optimum performance on all legs of the course was stressed, rather than giving undue importance to the ability of the boat to perform on the windward legs. Very important were considerations to be made on changing rigs. If the top suit caused one to change down because of its influence on the hull when sailing downwind, even though the top suit could still be carried effectively to weather... then one had gotten into a situation where the separate parts of the system had not been integrated. The goal would be to change down when performance on all legs suffered, so that under the lower suit, performance was still maximized on each leg.

Maximum draft was approximately 18 inches at the time, and neither designer predicted that near term developments would lead to a rapid deepening past that value. Subsequent work added an inch or so by 1989, but this prediction has been borne out by most new designs reported in the literature.

MENTGES 1987

Gerhard Mentges has been model yachting since 1973, starting as a member of the Duisberg Ship-Model-Club. He studied Naval Architecture at Aachen University and started work as a development engineer in the Department of Hydronautics at AEG in Hamburg. In March of 1987, Gerhard commenced a four-part series in *Model Yachting News* on Model Yacht Design. The series began in a general manner and rapidly moved directly to consideration of M-class hull design, as would be expected of a trained hydrodynamicist.

Part 1 dealt with an introduction to the field, and discussed hull and sail forces with an emphasis on hull resistance. Part 2 focused on hull issues such as longitudinal stability, freeboard and beam. Hull shapes like the radial hull, trapezium hull, v-hull, and u-hull were explored in quite a bit of detail. Each shape has benefits and disadvantages, depending where along the hull it appears. Part 4 concludes with specific directions for developing a trapezium hull that optimizes the considerations presented through the series. While rather technical, the series is a major contribution and should be required reading for any designer who wants an approach based on the physics of the liquid in which the hull sails.

Gerhard says that subsequent chapters will be forthcoming and will deal with the fin/bulb combination. As of this writing these have not yet been published.

ADRIAN BREWER 1989

One of the leading Australian designers is Adrian Brewer of FLOAT-A-BOAT. I got to know Adrian when I built one of his MACH II A-Class designs back in 1977 and took it to Marsh Creek, Pennsylvania, to win the ACCR for that class. Adrian's comments on the M-Class follow:

"In the early days, Australian designs followed the English trends. The most spectacular aspect in M-design is the great reduction in displacement over the last 20-25 years. The old style of vane boat of normal design, was a beamy, `V' sectioned boat with a draft of 12-13 inches. The displacement for a good all-rounder was about 22-24 lbs., with a 19-20 pound boat being a lightweight.

"Even when the bulb keel came on the scene in the 1960s the boats still carried similar weight and draft. It was really only a different keel style on the same style of hull. But the bulb keel did signal the start of a slow design progression which has accelerated over the last few years. Boats started getting lighter as drafts became deeper. Designers also began trying other hull shapes to take advantage of planing potential as the lighter weights allowed the boats to lift off the wind in a blow.

"Radio control took off over here (Australia) in about 1974-75. This is when the overall design of boats was more critically analyzed, and a converted vane boat did not make a good radio boat. (In general, vane boats were designed for longitudinal stability, the ability to maintain a straight and steady course, while R/C boats put a premium on maneuverability, and stability if any is really dynamic.—Carr)

"The new radio boats were lighter (17-18 lb.), deeper (15-16 inches) and with `U' hull sections that began to take over from the previous `V' hulls as a means of taking advantage of the off-wind legs of a triangular course. Australian racing is mostly in the coastal areas of the country where the wind is fairly strong and constant.

"I must admit that there is no noticeable `Australian' trend in M-class design, as it seems to have moved at a similar pace with the international scene. I've used the following headings to focus my thinking.

continued on page 47

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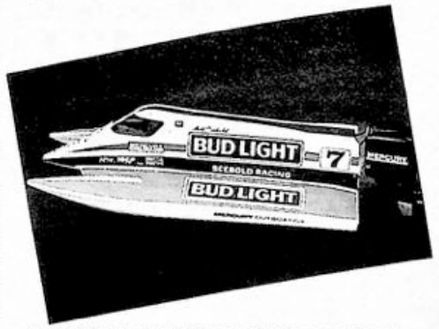
BY JERRY DUNLAP

MRP FAST ELECTRIC OUTBOARD TUNNEL

This Product Survey is slightly different from most reviews I do because I didn't actually get to assemble the boat. Seems like the guys at Model Racing Products have a nice kind of problem with their newly released "MRP Fast Electric Tunnel." They are selling the boat so fast they didn't even have one available when I wanted to review it for *U.S.B.& S.M.* Time was running out to make the Summer issue when I come up with an alternative plan. *(Even so, it was too late to make our Summer issue deadline. Time and printer deadlines wait for no plan! wcn)*

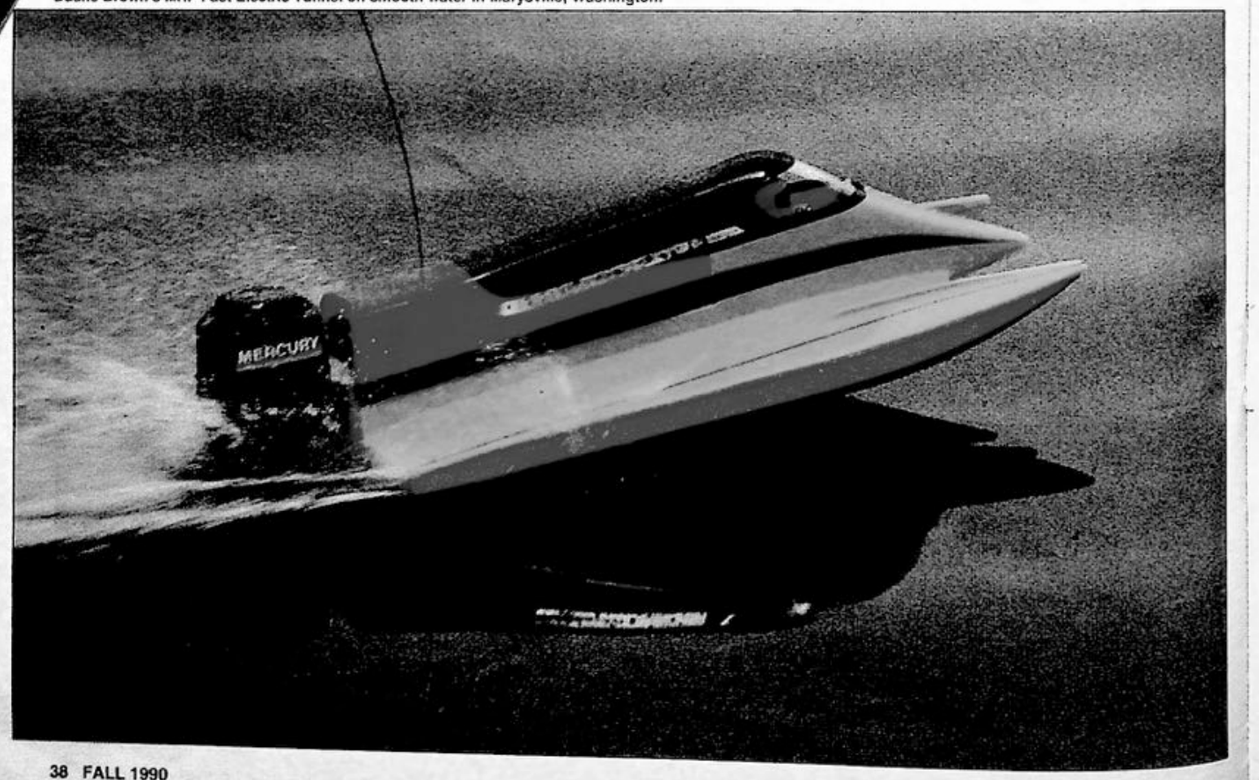
I was able to borrow a "F.E.T." belonging to MRP Sales and Service Manager, Ross Rainville. Actually, there really isn't a whole lot involved in getting the F.E.T. ready to run. I don't believe this review will suffer all that much because I didn't take a finished boat out of a box, install the radio and speed control, assemble and mount the motor, do some trimming of plastic parts, and apply the stickers. I did, however, have the opportunity to go through the Assembly Manual. This document is well done, with clear directions and helpful photos.

Having actually built a couple of electric tunnel boats of my own design, it was interesting to see what type of product MRP had to offer. The hull measures 23-1/2 inches in length with a five-inch wide tunnel. The boat is constructed of high impact plastic. The hull is a model of a Seebold OPC Champ boat that raced in the 1989 IOGP (International Outboard Grand Prix) racing series. The decal package included with the kit turns the boat into a mint version of the "Bud Light" enclosed cockpit tunnel. The "MRP Fast Electric Tunnel" is definitely scale looking!



An MRP Company photo showing the completed Fast Electric Tunnel with decals as furnished with the kit.

Duane Brown's MRP Fast Electric Tunnel on smooth water in Marysville, Washington.



Close-up shot of busy equipment installation. Speed control featuring cam-actuated micro switches works off throttle control servo. See text.

Jerry "refuels" boat with a couple of freshly charged six-cell packs. Electric race boats are clean, quick, and quiet!

The electric power unit employs a flex-cable drive system coupled directly to an RS 550 SH Motor. A plastic top cowling covers the electric motor and there is also a plastic lower unit housing to enclose the shaft tube. These covers provide a very scale appearing model electric outboard motor.

The speed control features cam-actuated micro switches working off the motor control servo. The speed control allows for two speeds forward, and Off. The low speed is achieved by switch/linking the two six-cell packs in parallel. High speed is the result of switch/linking the two battery packs in series.

The sealed radio compartment is rather cramped with the receiver, speed control, and two servos. However, everything fits under the lid. The receiver battery pack is located outside the radio compartment. I had some concerns about the exiting of battery pack and speed control leads from the radio compartment. In order to make a seal, Vaseline is gooped around the wires where they exit the radio compartment. So, before I ran the MRP Fast Tunnel, I really gooped up the wires.

As it turned out, I'm glad I took the time to apply the Vaseline, because I managed to dump the boat while running in some rather rough water conditions. It was upside down for about three or four minutes before I was able to reach it in the rowboat. Blocks of foam have been glued to the inside of the sponsons to keep the boat afloat in case it does flip. I dumped the water out of the boat and checked to see if the radio was still working. Everything checked out and the boat was sent out again. Upon finishing my runs, I removed the radio compartment hatch and there was a little water in the compartment. However, the receiver had been wrapped in a plastic bag and there wasn't sufficient water to disrupt the operation of the radio system.

The MRP Fast Electric Tunnel displayed good speed. I would estimate my "borrowed boat" was traveling in the low 20s. The wind was blowing about 10 - 12 mph and the water was pretty lumpy for a tunnel boat on the day my son, Paul, and I took the boat out for running photos. The boat's ride was pretty loose in these conditions and as I mentioned earlier, I flipped the boat. If I had one of these electric tunnels of my own, I would definitely make an adjustable mount for the motor. The motor as it comes in the kit does not have the capability of adjustment of prop depth or thrust angle. It would be possible to slot the plastic motor mount to allow the prop depth to be changed. Shims could be placed between the

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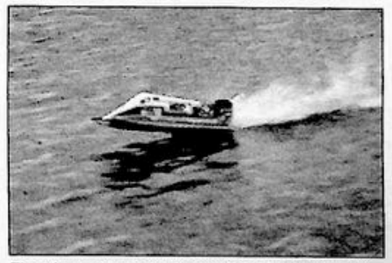
Cruising by at low speed (battery packs in parallel) for photographer.

Doing a "wheelie," accomplished by suddenly hitting full speed (battery packs in series) just at launching!

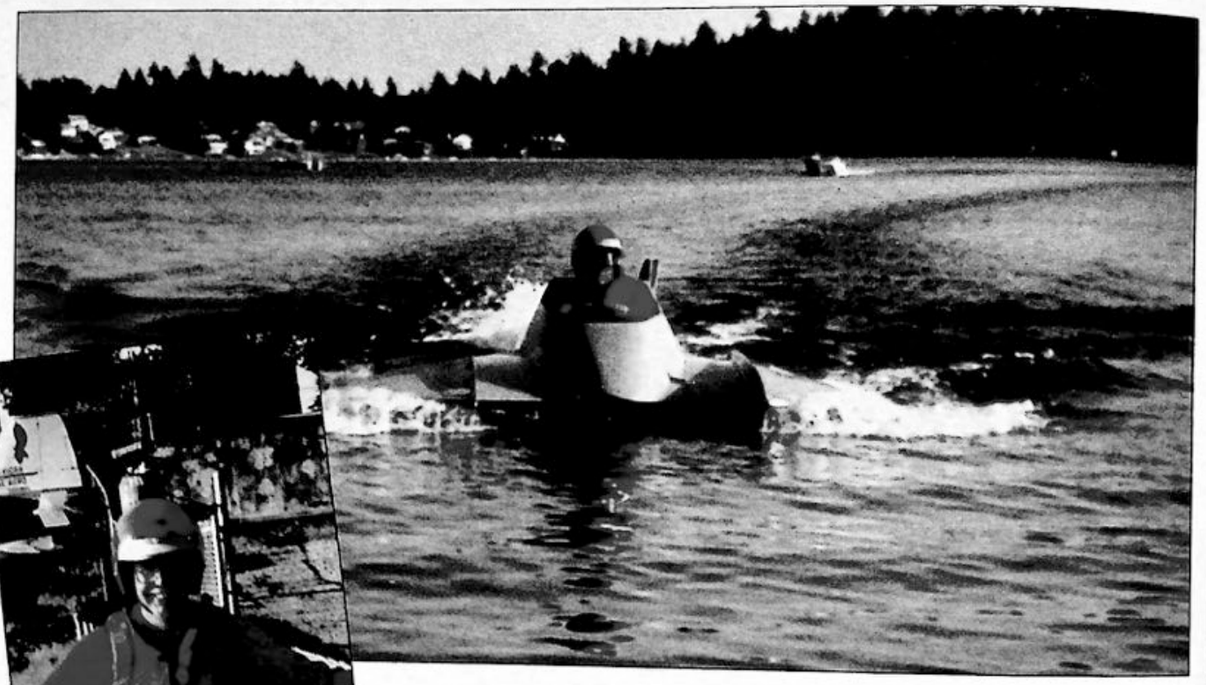

Electrics only go at a fast walk? Check this out! Speeds of over 30 mph clocked at recent electric champs. See next issue. When running fast in rough water like this, it's a good idea to add some lead.

Blub, blub! Like this is what can happen when a boat gets airborne in rough water. In this case, radio remained dry though it was dunked for two to three minutes. When flipped upright by rescue boat, it went on running as if nothing happened!

R/C POWER BOATS

BY JERRY DUNLAP

IT'S THE REAL THING



(Inset) Properly attired in lifejacket and helmet, Jerry waits for his chance to drive a 2.5 Liter Stock, full-size hydro belonging to Joe Souza. (Above) After making three test laps at American Lake, Jerry brings Joe Souza's Hanson Hydro back to the marina in one piece.

That's the catchy little jingle the folks at Coca-Cola created to have us remember their product. It also describes an experience I had recently when offered the opportunity to drive a limited hydroplane racing boat belonging to a longtime model boating friend. There's a bit of a story behind how this came about that I'd like to relate.

The boat I had the opportunity to take out for a test ride... no I didn't actually race it... is a 2.5 Liter Stock hydroplane belonging to Joe Souza. I guess I've known Joe for at least 20 years or so. Joe and his brother, John, ran model boats with me back in the late '60s and early '70s. Their sister, Christine, babysat for my children, Paul and Denise. The Souza kids were part of our extended family for awhile.

Joe loved racing model hydroplanes, especially our DragN'Fli 40. To this very day, one of Joe's favorite racing stories is the day he beat Ed Fisher in 40 Hydro Class at Green Lake in Seattle. That was probably back in the early '70s. Even back when he was running model boats, Joe would talk about racing a real hydroplane someday. He had an uncle in Idaho who raced limited size boats and that's what Joe wanted to do when he grew up.

Grow up Joe did, and after graduating from high school and serving some time in the Army reserves, Joe began working in a local Mobil station. After a few years, he had the opportunity to purchase the station. Today Joe operates a BP station on 6th Avenue in Tacoma, Washington.

Seven or eight years ago, Joe got back into model boating, but he was still talking about racing real hydroplanes. It was five years ago that Joe's dreams about racing a real hydroplane became reality when he purchased a used 2.5 Liter Stock hydroplane and began racing in this popular limited class.

The 2.5 Liter Stock class boats are

continued on page 49

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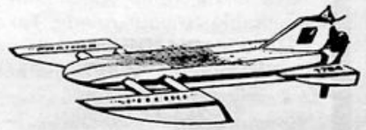
Prather SPITFIRE I



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ENTERPRISE *Continued from page 27*

Milwaukee, Wisconsin. Plastic kit companies donated the required 16 Grumman TBF Avengers (Minicraft), 32 Grumman F6F Hellcats (Hasegawa), and 24 Douglas SBD Dauntlesses (Testor). In memory of her husband, Brenda Hogston donated the four Chance Vought F4U Corsairs of VF(N) 101. All were in 1:72 scale.

Kits were assembled by the team during mammoth modeling sessions at an IPMS member's home. Using the production line approach, the ten men separated parts from their trees, Bill Gebhard and Larry Schramm applied the preliminary paint, then the pieces were cemented together. To accurately depict Enterprise launching her planes, some aircraft had to be displayed with wings folded back. That meant cutting the plastic wings apart and filling the holes with custom-made plugs. Work on Air Group Ten began on 26 August 1989, with the fitting-gluing stage lasting through April 1990. The task of weathering and detail painting fell on Paul Boyer's shoulders.

The last organization to come aboard was the Military Miniature Society of Illinois. This group committed itself to scratch-building 700 figures to man the model's flight deck, gallery deck, and island. Steve Roca, a Milwaukee resident, accepted the task of carving seventy 1:72 scale "master" figures all in different poses. Molds were made and the crew cast in white lead. (Britannia or brass was too expensive.) The figures then were modified for various poses, given customized clothing and/or equipment, and painted. To determine precise body positions, Swickley sent the society representative planes from the four groups.

As they had done in 1989, Hinz and Streeper returned to Oshkosh two weeks before Fly-In 1990 (27 July through 2 August) to mate the hull with the island. The Cessna Restoration Shop staff at the EAA built the model's display case of plexiglas supported by a steel tube framework. Resting on a tray, the replica was rolled out of its case each morning so Hinz, Streeper and fellow modelers could add the preassembled components. Work continued throughout the convention. Weathering of the ship was performed by Shep Paine of Chicago. When the model was rolled back into its case at night, a forced-air ventilating system minimized any environmental threats to its longevity.

Surrounding the case were panels of photographs, artifacts, and text which told the Enterprise story. Almost as fascinating and certainly as remarkable has been the story behind the model. It's the first time a group venture of such complexity, where scale and museum-quality workmanship were prime requisites, had ever succeeded in the United States. Project Enterprise is a tribute not only to the men who served aboard The Big E, but to those ordinary modelers who accomplished the impossible. •

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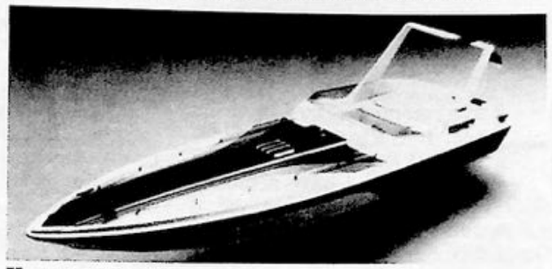

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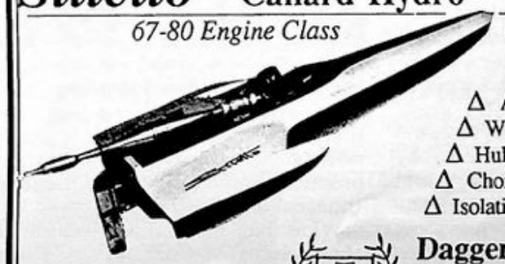

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VALERIE *Continued from page 29*

done on my prison job during the slow time, which was every day and against the policy to be hobbying at work. An overzealous rookie guard was reading my outgoing mail (as it is part of his job) and the mention of the "Plans" and looking forward to "The day I sail out of here," was misconstrued into what he believed to be an escape plan.

I was taken from my prison job and as quick as you can say "Bunker Boat," I was put in solitary confinement and charged with attempted escape! Why me?

Well, after the initial shock and the investigation by the Lieutenant in charge that did in fact substantiate my story, I was released. For weeks afterwards I was being pointed out by the guards and a hint of a fey smile could be found on their faces.

I resumed my shipbuilding with renewed vigor and spent three or four hours a day, seven days a week

continued on page 45

SCUTTLEBUTT

BY RALPH WARNER

Have you missed me? I haven't been trying to avoid you. Since the last time you read one of my columns I have attended EIGHT R/C shows from one end of the country to the other. If you stopped by our RAM booth you may have had the chance to spend a few minutes talking about our products.

But I have been noticing some things around the industry that are having an affect on your hobby. One of the most interesting is how the marketing of the products you use has changed in just a few short years.

In the old days, the hobby industry was like most others. It was based on three levels of delivery. First, there were the manufacturers who actually made the product you would eventually buy. They would sell to a distributor who purchased in case quantities and sold in smaller numbers to retail hobby shops located in the same community or possibly an adjacent state. The local hobby shop probably carried a wide variety of products but in small numbers, since he could replace his stock quickly from his nearby distributor.

This simple system didn't work as well as the hobby industry grew. Many model builders weren't located near the comparatively few hobby shops. In many cases they would travel a great distance to get the supplies they needed. There was some mail order service but the mail was slow, not good enough to satisfy the instant needs a builder always experiences.

There was also a new trend called "discounting" that was sweeping the country. Who would have thought that K-Mart, the offspring of a second level retailer called Kresge, would someday threaten the mighty Sears and Wards retail domination.

But it also began in the model industry. Small ads appeared in model magazines offering special prices if you traded in your old engine and then your old R/C equipment. Then ads offered combo "deals" if you purchased a complete R/C, airplane and engine package. It was only a matter of time until all of these outside developments would affect the model hobby market. The photography industry had experienced the same phenomenon.

Enter the mail order discount merchandiser who was able to effectively market products through magazine ads, ship via efficient, nationwide U.P.S. and through computers and efficient processing, offer prices that were previously not seen in the local hobby shops.

This became such a dominant factor that in some cases there are as many mail order suppliers advertising in magazines as there are ads from the manufacturers of the products.

As competition grew between mail order companies, the lines of marketing have grown very confusing. In an attempt to reduce prices, some of the companies now have become the only source of various products that are manufactured to their specifications.

Some companies combined and now play the roll of importer/distributor to hobby shops, and mail order source to model builders.

Other companies have reconsidered their original position in the market. Last year, a company which had built its business on direct-to-the-consumer sales of exclusive lines of imported products, announced in the hobby magazines that it would no longer sell this way and that their products would only be available at the local hobby shop.

What has been the effect of all these changes? Currently, the consumer has benefited the most. Competition has kept the price of R/C equipment very low when compared with other markets that use high tech products. It is possible to start with an R/C package today at the same NUMBER of dollars that it would have cost 30 years ago! The price of the package is still in the three to five hundred dollar range. But 30 years ago you could have bought a good used car for that amount. And the equipment you bought 30 years ago in no way compares with today's advanced units.

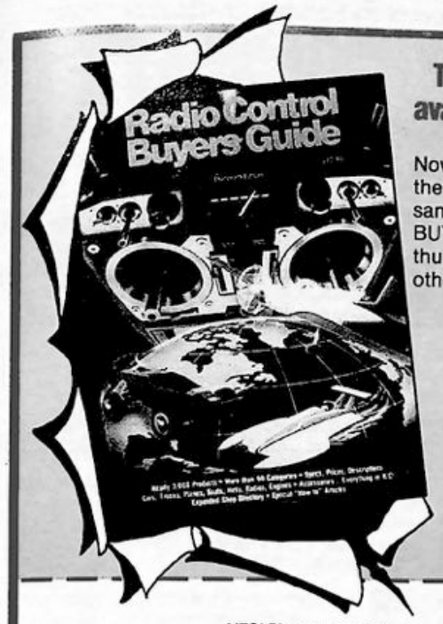
The recognized value of the hobby has brought in many new customers. The volume of sales has also worked to keep prices down. But, as I said above, the consumer has benefited the most.

Manufacturers have worked to meet increased demand and fill in answers for the continuous question, "What's new?" Expansion and investment are the keys to this. Both are problems if the products don't find a market. The R/C car market has been particularly volatile. Demand was tremendous for new cars and accessories just a few years ago. This has now leveled out and some companies that had bet on continued increase are feeling the pinch.

Distributors are successful if they have a large enough volume and/or have been able to find exclusive products that have sold well. Small distributors who specialize can be successful if they watch trends very closely and get in and out of various products as they rise and fall in popularity. The middle sized distributor feels the greatest squeeze. He can't buy in the large quantities to get the best prices. He must carry full lines even though they might not all be profitable. And, he probably has too much inventory to easily bail out of a product the way the smaller companies can.

What about your local hobby shop? You have seen the ads by one of the distributors which urge you to support your local hobby shop. The reality is that if you don't, he might not be there in the future. Your local shop is feeling the biggest squeeze. His overhead is the greatest since he probably operates in a convenient shopping area. His store must be more attractive so that you will be comfortable as a customer. He probably carries a wide variety of all the accessories that make completing your model possible. But most of all, he is the one person who has something to lose by giving you bad advice... that is you as a customer. If some other model builder steers you wrong, he just shrugs his shoulders and walks away.

You are a model builder at one of the most volatile times in the R/C industry. You are benefiting from years of investment and development by thousands of people and hundreds of companies. The national and international economies affect the amount of expendable dollars available for hobbies. The decisions and purchases you and your friends make will affect the direction of the industry for future years. •



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VALERIE *Continued from page 43*

working diligently on this project. A total of twelve hundred hours was put into the boat and its case.

The showcase is white ash, hand sanded and hand rubbed to bring out the best of the woods' natural grain.

I am enclosing some photographs of the "Valerie K," named after my niece. The Valerie K is berthed at my brother's home and was completed just in time to be the family Christmas gift.

I would like to thank your magazine for the opportunity to open my eyes to the enjoyment and pleasure I have experienced from your publication. •

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WAVES *Continued from page 31*

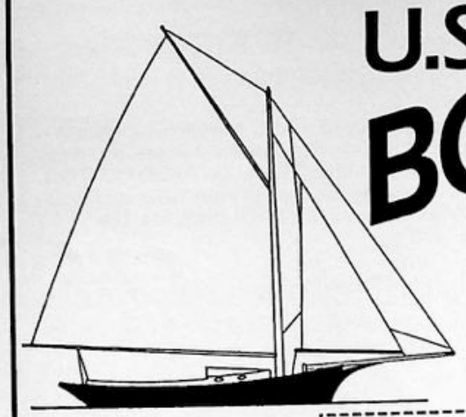
milliamp. This one you don't really have to worry about turning off all the time, as a single AA alkaline cell will provide operating power for six months. Need ballast? Use a D cell, and forget the switch—this little guy will blink merrily away for 2.6 years!

If you want yet a little more kick to the LED, you can go up to three-volt power. The basic circuit (A) will blink at approximately once a second. Circuit B is a bit faster, about twice as fast as a matter of fact. Don't be afraid to experiment with different values of the capacitor and resistor to tailor the rate as you see fit.

Circuit C can be used if you need to drive more than one LED at the same time. Its rate is just over once a second, though, as you might expect, the drain is higher, on the order of 2.0 mA. If you need to reduce that for some reason, adding two capacitors, as in Circuit D, will reduce the drain about 25%.

LED's not acceptable? Well, you can also use the LM3909 to flash incandescent bulbs. Circuit E shows the connections for that application, with a six volt No. 47 bulb and six-volt power. The flash rate in this case will be around 1-1/2 times per second.

Radio Shack has the LM3909 (276-1605) at $1.69, though it is considerably cheaper in regular electronic parts outlets. Radio Shack also has a wide variety of LEDs, as well as a nice little pre-etched, pre-drilled, printed circuit board (276-159), on which the IC and components and necessary wiring can be rapidly and



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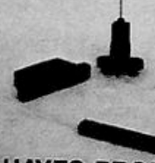

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neatly mounted.

Servo reversing is sometimes necessary, especially with the older or cheaper radios that don't include that feature in the transmitter. And it really isn't that hard.

Actually, it involves only the reversing of two wire pairs, and recentering. The first two wires are on the motor, readily seen when you remove the bottom case. Simply unsolder them and replace them in a reversed order. The other two are on the feedback potentiometer, a variable resistor that is always located on the center section and visible when you move the amplifier out of the way.

There are two kinds of pots to deal with. In American made servos, you usually find a pot element recessed into a cavity in the servo case, held in place with two small screws around its perimeter. In non-U.S. made servos, a sealed pot of the more common variety is used. In both cases, there will be three connections going to them, either on the top, or along the side. They are always physically arranged so that you can readily distinguish one connection in the center, with one on either side. Refer to the enclosed sketch. As in the case of the motor, remove and reverse the two outside connections. The middle connection remains untouched.

In some cases, the servo will have to be re-centered, which has to be done with it plugged into an operating system. You will know that recentering is necessary if the output runs into an internal stop before traveling its normal rotation. If it doesn't stop, simply reinstall the output arm and you are done.

If the servo does bottom out, the procedure is slightly different for U.S. and non-U.S. made units. In the former, loosen the screws that hold the pot element, and rotate it slowly in the direction that moves the output away from the bottomed side, until normal centering and operation is achieved. In the case of the other type, remove the top case to expose the gears, and temporarily remove the gear that meshes with the output gear. It is generally thicker than the others and rides on a shaft higher than the others in the train. Now with the servo powered, and with the output gear centered, rotate the gear train until the motor stops. Install the gear that you removed; you will find everything nicely centered and in step again. See, it wasn't that hard, now was it?

Want some more? There are many similar tricks of the trade that don't require electronic engineers to accomplish, things of which a serious hobbyist is well capable. Let me know! Also, if you have specific questions, or have come up with an interesting solution of a particular problem, why not share it with us? Eloy Marez, 2626 W. Northwood, Santa Ana, CA 92704. •

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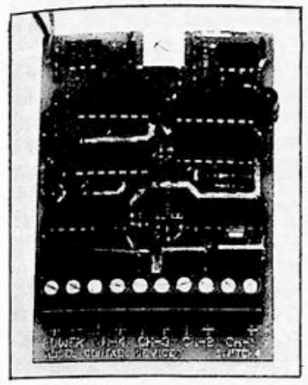

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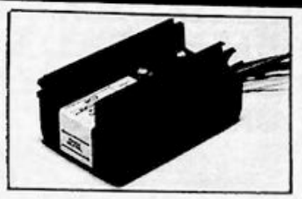

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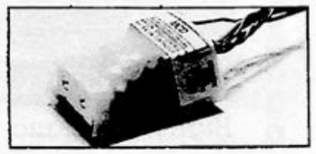

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STRICTLY *Continued from page 37*

"Displacement vs. Wind Strength. Australian displacements have settled in at about the middle to heavy end of the International scene. Successful boats are in the 11-14 lb. range with most at about 11.5-12.5 lbs. These figure seem to produce a good all-rounder, if there is such a thing, with slightly heavier boats doing well in heavy wind areas.

"Boats down to nine pounds have been tried, but lack power to windward. The number of suits needed to sail these boats well does at least swell the pockets of the sailmakers.

"Displacement vs. Wave Height. This is not really a major design consideration over here, as there is such a wide variety of wave conditions. Not many boats are designed to excel at only one venue. We experience extremes such as in Perth, Western Australia, and Melbourne, in Victoria, of a large wave build-up accompanied by strong winds, to a place like Canberra, where you can have a large swell and no wind.

"There are times when I have sailed in Sydney when there was a good breeze and flat water. A couple of years ago, when the Nationals were in Queensland, it was like sailing on a millpond.

"Most skippers are quite happy to

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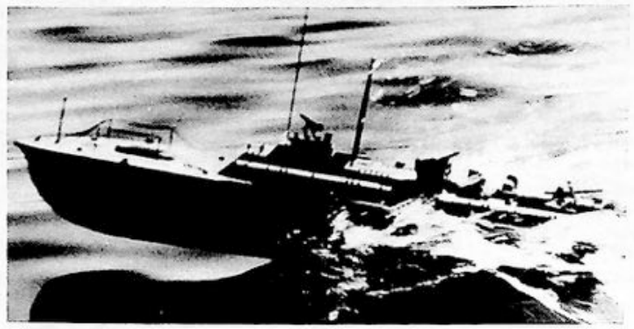

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take their club boat to events at a variety of venues and hope to do well, probably not giving too much consideration to varying wave patterns, and in many cases not knowing how to set up their rigs to take full advantage of prevailing conditions. The logic seems to be that if the boat goes well at the home water, then the same rig setup will do well anywhere. A recipe for frustration.

"Keel Depth vs. Wind Strength. This factor has a direct relationship to displacement. In the M-class, with no restriction on either displacement or draft, it has been a simple case of 'drop the lead and lighten the boat.' Drafts are hovering between 18 and 22 inches and the keels are fairly narrow—about 3 inches under the hull to 1.5 inches at the lead.

"Ballast ratios of 75% and better are not uncommon for the top boats, but the average club skipper can find these figures a bit hard to achieve as well as expensive due to materials like Kevlar and Carbon Fibre. This is also dependant on the total displacement, as the lighter you go, the more difficult it is to go for a lot of lead as there are numerous items which cannot be reduced in weight (e.g., rigs, R/C gear, batteries, etc.).

"Fin shapes have covered just about the gamut, but appear to be following fads rather than any particular shape having proved itself to be noticeably more efficient. The latest are the elliptical and semi-elliptical shapes (mostly on the trailing edge).

"There is another factor which is often overlooked in our clamour for lighter weights and that is skin friction or drag. In order to achieve a given righting moment, it follows that if the total displacement of a boat is reduced from a given optimum, then the reduced amount of ballast must be placed lower (assuming similar hull shapes are used). But this increase in draft causes an increase in wetted fin area, and thereby increases the skin friction drag as the boat moves through the water. At which point this drag offsets the advantage of the lower lead is very difficult to say, but there must come a point where the two cancel out. If we try to solve the problem by reducing the lateral area of the fin, we can destroy efficient lateral resistance and increase the twisting loads on the narrower fin, thereby creating unwanted steering problems as a byproduct.

"Rig Height vs. Wind Strength. Although data exists to indicate that a high aspect ratio (A/R) rig is the most efficient to windward, there seem to be many practical problems which can devalue the tall rigs in all but the lightest of air.

"The tall masts can be difficult to stay and control efficiently, especially if lots of drag inducing wire is to be avoided. It is easier to cut a bad tall suit than a good one. In fact, in 30 years of competition yachting, I have yet to see a really good top limit suit for an M. The big problem is controlling the mast shape. Carbon fibre has improved the situation over the last few years, but I still prefer to sail with a lower A/R. For most modern Ms, a mainsail luff of between 65 and 72 inches seems to give good all around results. The boats can carry these in a wide range of winds, and the lower A/R performs well off the wind while powering the boat to windward without laying her flat. Even in light airs, I wonder if the high A/R is really necessary. At last year's Victorian Championship, Rob Guyatt, who was over from South Australia, forgot to bring his high A/R suit and sailed in drifting conditions against other top Ms all with ultra-tall rigs. He was easily matching them for boat speed using a 65 inch rig.

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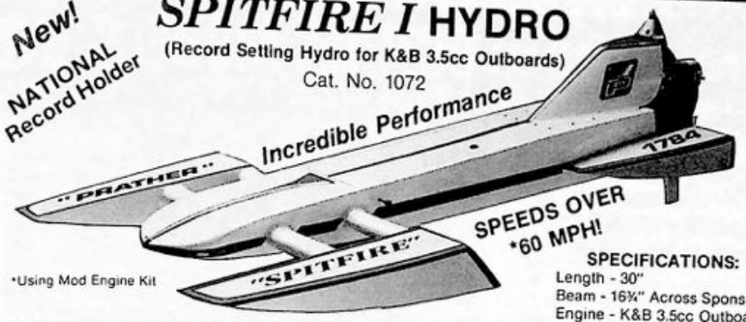

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"The lower rigs are usually the way to go over here, as there is usually plenty of breeze."

In the next issue we will have the opportunity to advance to the cutting edge of development in this high tech class by studying at the knee of Mr. Bob Sterne, designer of such notable M-class boats as the KISUTCH, LOGIC and ORBIT. Would you believe a boat with a total weight of 8 lbs. 13 oz, of which 6 lbs. 8 oz is keel and lead bulb? You'll learn about it, and see pictures of it and its swing rig sails, right here.

Until then, send me your photographs and descriptions of your projects. Share your hobby with the rest of us. If you have questions, remember a stamped, self-addressed envelope is the standard courtesy. Rod Carr, 3011 - 177th Ave. NE, Redmond, WA 98052. •

MRP *Continued from page 39*

motor mount and transom to achieve different prop thrust angles.

Because the sponsons do not have much dihedral, the boat tends to slide through the corners more like a hydro than hook-turn like gas tunnels I'm accustomed to driving. Another cause of this cornering trait would be the positive running attitude of the boat. A turnfin is included with the kit to improve the turning characteristics.

Run times for the MRP Fast Electric Tunnel were right around the three-minute range. This was accomplished using regular 1200 mAh NiCd packs. I didn't have an opportunity to try any of the Octura propellers intended for fast electrics. The plastic propeller that comes with the kit certainly provided plenty of push.

The MRP Fast Electric Tunnel is now available through regular hobby outlets. It is quite possible this boat will create a whole new class of electric boat racing. •

BOATS *Continued from page 40*

generally around 13 to 15 feet in length and powered by Ford Pinto engines of 1600cc. Only a two-barrel carburetor is allowed and the engines are run on gasoline. Since the boats are small and the cost of powering them is less expensive than most racing classes, the 2.5 Liter Stock class is one of the biggest of the APBA limited racing classes.

In late summer of 1988, Joe purchased a newer 2.5 Liter Stock hydroplane made by Mike Hanson. Mike Hanson presently drives the "Miss Madison" unlimited hydroplane. For

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the 1990 racing season, Joe bought a ten-year old 5 Liter Stock hydroplane made by Ron Jones. He plans on racing both boats during the 1990 limited racing season here in the northwest. If you think racing two model boats can keep you busy, try racing two full-size boats!

It was during a test session for the 2.5 Liter Stock boat that Joe offered me the opportunity to drive his Hanson Hydro. I jumped at the chance, as I figured it would be fun to compare driving a model hydroplane with driving a real hydro. It was also very convenient because the testing location was only two miles from my house.

I showed up for the test session and Joe pointed out the lifejacket and helmet I'd need to wear. Lucky for me, Joe is also a pretty big guy or I'd never fit into his lifejacket. I don't know what it feels like to wear a corset, but I was definitely packed tightly into that lifejacket. I was a little concerned about the racing goggles and my glasses, however, the goggles fit over my glasses without any problems.

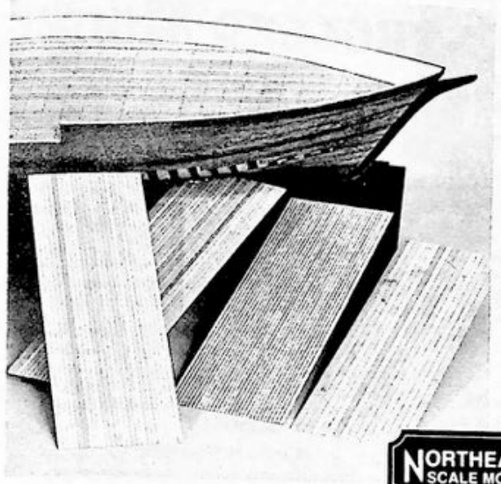
Once I was properly attired, Joe began explaining how to start and stop the engine. It was really pretty simple. There was a toggle switch to turn on the ignition system and a starter button. Flip up the toggle switch and hit the starter button until the engine fired. To kill the engine simply flip down the starter switch. Attached to my lifejacket was a kill switch harness. Should I get thrown out of the boat, this harness would act like a circuit breaker and kill the engine.

The engine is connected directly to the prop shaft so once the engine is running, the boat is moving. Making the boat go faster was simply a matter of mashing down on the foot throttle.

The cockpit accommodations weren't exactly plush. A pad of foam rubber on the bottom of the boat was all the cushioning provided. This was definitely driving "by the seat of your pants." To top it off, the foam rubber was wet because the boat had been run a couple of times before I had my turn.

Joe informed me I'd feel a strange sensation once the boat lifted up on step. He didn't give me any pointers on how to drive the boat through the corners. The only words of caution he provided concerned turning off the engine sufficiently away from the dock to avoid a "hard docking."

The guys pushed the Hanson 2.5 Liter Stock away from the dock and



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I hit the starter button. The engine didn't start immediately and I thought maybe I'd flooded it. Joe yelled out to just keep the throttle pedal down until it fired. I tried again and this time the little Pinto four-banger came to life and the boat began "mushing" forward, picking up speed. After a couple of hundred yards, the boat broke free and popped up on step. As Joe had mentioned, it was a unique sensation. The feeling was much like what one experiences when an airplane lifts off the runway.

With the boat up on step, I headed it down the lake in a southerly direction. Although I had ridden in flat-bottom skiboats at speeds around 60 mph, this was my first experience in a hydroplane. My first impression was that the ride was much smoother than the flatbottom. There were no course markers to drive around, so I just tried to imagine what a typical corner would be as I began my first turn.

Here is where I noticed a big difference between making a corner in a real hydroplane and making a turn with a model hydroplane. With our Dave Frank Sport 40, when you turn the wheel on the transmitter the boat hooks up on it's turnfin and really comes around. Turning the steering wheel in the Hanson 2.5 Liter Stock did cause the boat to begin to turn. However, it seemed to me it took a lot more steering to get the 2.5 Liter Stock around the corner than what it takes to get our Sport 40 through a corner.

I must admit I wasn't terribly confident in my cornering skills with a full size hydroplane. I took it pretty easy through the first turn and headed down the straightaway again. I was now headed in a northerly direction and into a slight breeze. The boat did have a different feel running into the wind. It rode lighter than going with the wind. I made another corner and headed south again, pressing a little harder on the throttle pedal.

I was beginning to feel a little more comfortable and tried holding more throttle going into the corner. When the boat began sliding, I backed off (chickened out?) to allow the boat to settle and turn. Cornering a real hydro was definitely a challenge. Doing this with other boats side-by-side would probably take more intestinal courage than I believe I could muster.

After making three laps, I headed the boat back to the dock. Heeding Joe's warnings about shutting down the engine, I flipped down the kill

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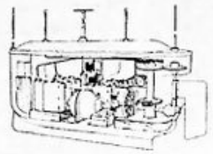
In 1897, Nikola Tesla, submitted a patent application for his invention (teleautomatics) to the United States Patent Office. Tesla's application stated a device capable of being controlled remotely and without wires! As the patent examiner began to scrutinize the patent application, he just couldn't believe what he was reading. He was awestruck! In fact, the application was so farfetched, the chief patent examiner decided to pay a personal visit to Nikola Tesla's laboratory to see the invention for himself.



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switch with plenty of distance between the boat and the dock. With the prop not turning, the boat quickly slowed and my approach to the dock was just fine.

Unstrapping myself from the lifejacket, I realized there's a lot more to driving a full size racing hydroplane than just pushing on the throttle pedal and turning left. In my opinion, the biggest difference in driving the full size hydroplane was the sense of concern I had for my personal safety. I suppose you could call it fear. I was never in any real danger while driving the 2.5 Liter Stock. I was on the lake all by myself and drove somewhat conservatively. However, to participate in a race with 10 to 12 other boats all attempting to gain the inside lane in turn one would be a much bigger challenge than hitting the starting line with an RC Sport 40!

I've chatted with Joe Souza about the differences between racing full size hydroplanes and models. He stated his background in model boat racing helped him when he began racing in the 2.5 Liter Stock Class. According to Joe, the importance of making a good start is the same in both full size and model racing. The techniques he developed to make starts with his Sport 40 proved valuable when making starts with the 2.5 Liter Stock boat. The importance of good preparation and maintenance was also a carryover. Success in boat racing, full-size or model, takes plenty of effort, patience, skill, money, and sometimes luck.

I think there is a "courage factor" ingredient in racing full size boats that doesn't exist in model boat racing. In model boat racing, if you make a "dumb decision" and crash or flip your model there isn't any serious damage to you physically. However, when you are racing a full-size hydroplane, a "dumb decision" can result in serious consequences of life threatening proportions. Model boat racing would probably be a better sport if we raced our models with the same thoughts about personal safety concerns that apply when racing full-size boats.

I greatly enjoyed the experience of driving Joe Souza's 2.5 Liter Stock hydro. It provided me with insights into what it takes to race a full-size hydroplane and a greater appreciation of the skills and courage it takes to race these boats. It also helped affirm my belief that racing model boats is an activity allowing me to experience the thrill of racing and the security of knowing my feet are still on solid ground. •

LOG *Continued from page 9*

to attend the World and Regional events they organized then, you obviously did have to build within their rules!

"Many countries are affiliated with Naviga, to allow their internationally minded modelers to compete at World level, but also run national classes with different rules to suit local demand. This allows local modelers to use freely available equipment, perhaps where, for example, top quality motors, radio, or electric cells, are not on general sale, but gives a class rule for the top guys to go for, if they can get the gear.

NAVIGA PROBLEMS

"Language. The three official languages of Naviga are German, French, and English, but because of past history and the ability of eastern officials to take up official office financially supported by their national funds, there has always been a bias towards German. In recent months the situation has changed, as the Eastern Bloc countries have had so many financial problems that they have not had the security of easily available funds.

"Inertia. Like all big outfits, you are only as good as the local management, and not all officials in all countries are as good or able as you could wish. This results in other modelers refusing to accept their rules, and general local dissatisfaction.

ALTERNATIVES TO NAVIGA

"There is no direct alternative to Naviga in Scale Modelling, both static and working models, and their rules and World Championships are the only generally recognized ones. This is partly because there is no full size equivalent organization, and if you think about it, these type of models are just that, MODELS!

"In both sail and power speed boats, there is heavy influence on model performance by the full size equivalent, and as models have developed with radio control facility, there has been pressure to have model contests replicate the big boys. A vane controlled yacht can't sail a full regatta course, and a power boat without adjustable in-motion rudder can't run a circuit race either, but once you put in good R/C gear, then the emphasis is toward copycatting the big boats.

"Sail. Taking Sail first, IYRU-MYRD as it is now known, has grown through this era to have 26 countries, and has now affiliated to the manned boat organization, IYRU. Thus it is possible for modelers to go from their big boat direct to their R/C boat without changing club, or vice versa. By no means are all club mem-

continued on page 62

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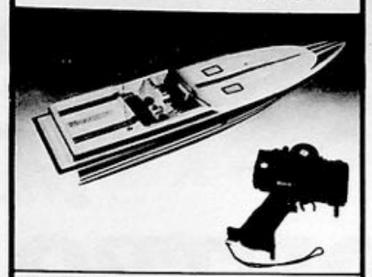

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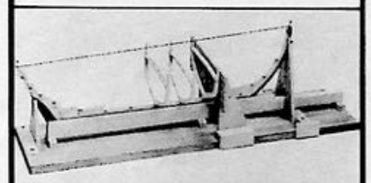

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BY BOB PREUSSE

JOHN SPANGLER MEMORIAL OUTBOARD REGATTA

Trophy winners (l to r): Clay Skebba, Bob Preusse, Brian Preusse, Bill Schenk, Scott Jones, Greg Johnson, Dale Bakalar, Matt Fuchsen, and Brian Sauermann.

The boats lined up for Concours judging and for spectators' benefit. Several hundred on hand in spite of the inclement weather.

On Sunday, May 20th, the Minute Breakers Model Power Boat Club hosted the "12th Annual John Spangler Memorial Outboard Regatta" at Lambs Farm near Libertyville, Illinois. Once again our race was sponsored by Al Fuchsen, his family and staff from Al's Hobby Shop, 121 Addison, Elmhurst, Illinois. Through the efforts of Al we were able to generate a large prize list which each contestant shared in. As the prizes are awarded by lottery, we soften the normal racing intensity to keep the event fun.

RACE THEME

The outboard event was first held at Lombard Lagoon in 1979 as a tribute to John Spangler, a fellow modeler who, at the age of 21, contracted Hodgkins Disease. As an enthusiastic salesman for Al's Hobby Shop, John ran the Pro-Line repair center and also repaired trains and all brands of radio equipment. One of his many accomplishments was designing a high powered servo for boat and car applications. Though many people were kept in ignorance of the fact by John's natural inclination to carry on as though nothing was wrong, the disease eventually took its toll. John Spangler died at the age of 23.

The John Spangler Memorial Race is held each year to uphold the ideals that John had. He believed in helping the beginners to our hobby, so this race is devoted to the novice boaters, giving them the opportunity to compete against others with similar experience. This year we had 11 entries in the novice class, which provided very exciting racing. As with the other classes, the cold, rainy, and windy weather kept the number of entries down from prior years, so we really appreciate all those who entered, along with the families and the spectators who attended and purchased raffle tickets for the donation to Lambs Farm. This annual event has raised over $8,000 for charities in the Chicagoland area, such as Lambs, which is dedicated to helping the handicapped develop their abilities by working and living in a thriving community.

3.5 NOVICE OUTBOARD TUNNEL

We define novice as a contestant who has not finished higher than third place in any IMPBA sanctioned race. It's great to see someone new walk up to the winner's circle at the trophy presentation each year. This year's novice winner is Brian Sauermann of Itasca, Illinois. Brian had 1,025 points and in addition to his first place award, he also received a big, beautiful trophy from *U.S. Boat & Ship Modeler* magazine for winning the 3.5 Novice Class. This is a perpetual trophy and Brian is our third winner. Thanks again to our favorite magazine for supporting this race. It's nice to help the beginner to get his feet wet, so to speak!

Dale Bakalar, of Joliet, won two of three heats scoring 800 points, which gave him second place overall. And Bill Schenk, of the Minute Breakers, who was busy throughout the day as a pit boss, put together some good runs to finish in third place. In fact Bill and the other pit bosses did such a good job, I might suggest to other clubs a new way of score keeping we tried at the race. We had two pit areas that alternated as running and on-deck, which most clubs use, but we had a pair of pit bosses assigned to handle pits A and B. While pit A is running, that pit boss records scores, order of finish, penalties for that heat,

continued on page 62

Brian Sauermann, Itasca, Illinois, proudly displays his trophy provided by *U.S. Boat & Ship Modeler* magazine for winning the novice class.

Roberto and Maria Martins work on their Tom's Cat. They just moved to the area from Sao Paulo, Brazil.

Dirk Christianson, wearing a cap with TV antenna pole, and helper Brian Preusse, called heats from atop a trailer. Judging by the mike position here, what Dirk is saying is not for publication!

Helper demonstrates fine form for launching. Wading boots standard equipment.

Badgers Boat Club of Kenosha, Wisconsin, came in force. Clay Skebba, far left in group photo, won Concours trophy.

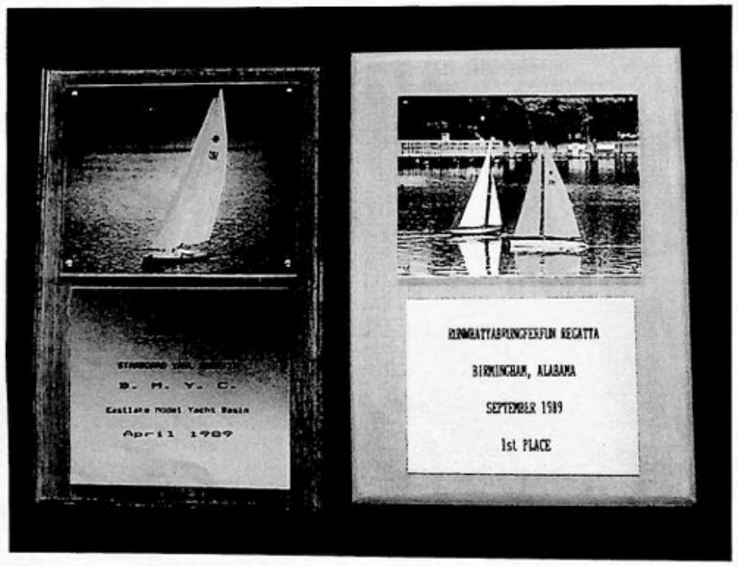
BY WILLIAM I. WHITTEN

CUSTOM AWARD PLAQUES

Is your club tired of laying out big bucks for the same old awards from the trophy shop? You know the kind—a chunk of marble or walnut with the gilded pot metal boat (or airplane, car, or whatever) on top. Even the nicer ones are a bit cheesey and just collect dust sitting around the house. For my money, a nice plaque is much more desirable, both to give and to receive, and if it is customized by the host group, so much the better.

Here is one way to turn out reasonably attractive custom plaques at a cost that won't break the club's treasury. They aren't particularly time consuming either. If several people pitch in, a full set can be made in just a few hours. In fact, a good club project would be to get together and make enough for a full season at one session. The information plates can be added later as needed.

The key to making these is having good photographs to put on them. The plaque is just a nice slab of wood with the usual information on whatever the award is for. A good photograph under the plastic cover plate makes the whole plaque come alive. Host clubs have one or more avid photographers among their members - this is an excellent way to utilize their skills. The ones we have made have all been for model sailboats, but with the appropriate photographs these plaques could be used for model airplanes, power boats, cars or anything else you can dream up. Here's how to make them.



WOOD: Start with a nice straight, well seasoned piece of wood. Fine mahogany or walnut are great if you can afford it or find a source of inexpensive pieces, but any clear wood free of knots and blemishes will do. Even pine shelving turns out quite well with the right stain and finish. You can make the plaques any size you like, but about 6x8 inches and three-fourths to one inch thick is a good size to start with.

Cut as many pieces of wood as needed, using a table saw or radial arm saw if you have one. Whatever you use, make sure the finished blanks are straight and true. Sand everything smooth. Use a router to cut a molding along all four sides. If a router isn't available, a small finishing plane can be used to bevel or round off the edges, followed by careful sanding. Don't forget to drill a hole in the back so the plaque can be hung on the wall.

Once you have the blanks all cut and sanded smooth, apply your favorite wood finish. A lot will depend on what wood you use. I usually do the same as for plywood boat decks—a coat of Minwax stain followed by several coats of clear polyurethane varnish. It won't be like fine furniture but it should be quite acceptable. Put the plaques aside to dry completely.

PLASTIC COVER PLATES: These are simply pieces of thin transparent acrylic cut to the appropriate size. Clear acrylic can be purchased at nominal cost at commercial plastic dealers. Those that fabricate plastic covers and other items from clear acrylic sheets often sell the scrap pieces at a few cents per pound. You want the thinnest they have on hand—no more than 1/8 inch thick. While you're there, pick up some of the thicker sizes too. It's great for all sorts of model and hobby uses.

At least one or more sides of the scrap pieces should be straight. Using a drafting triangle, draw the cover plates on the paper backing, They should be a bit smaller than the photographs to allow trimming to the exact size. Cut them out with a Dremel saw or sabre saw with a fine-tooth metal blade. Sand or file all four sides straight then polish the edges by scraping with a new, sharp, single-edge razor blade. Then drill a 1/16 inch hole in each corner. Be careful, as the acrylic is easily scratched or damaged. Position the plastic plate on the wood plaque and drill a 1/4 inch deep pilot hole through the corner holes to prevent splitting the wood. Leave the paper backing on until final assembly.

PHOTOGRAPHS: Use clear, sharp standard size color prints. Matte finish is preferred but the glossy ones are OK. We use a different print for each plaque. First place has one boat, second has two boats, third has three boats and so on. Look for shots with the models filling a good part of the frame and without much in the background to get in the way. Remember that the edges will have to be cropped to match the cover plates.

INFORMATION PLATE: There are several ways to do these. I have seen parchment hand lettered in gold ink that looked OK. Calligraphy is also a possibility. The engraved brass plate is popular but expensive. A good alternative is a sort of "photocopy on metal plate" process available at some print shops. It is made by what is called an "EXPRESS" machine which works like this: You type or use a computer or rub-on letters to print all the information on paper, exactly as you want it to appear on the plate. A mirror image photocopy is made which is then heat-transferred to the gold anodized aluminum plates. It is much cheaper than engraving and results in a very professional looking plate. The only rub is that the result is only as good as your original, so take the time to do it right.

FINAL ASSEMBLY: Once you have all the various pieces done and the wood finish is dry, the plaques can be assembled. Peel the paper off the acrylic cover plates, lay them on top of the photographs, and trim away the excess photo paper with a razor blade. Punch the four corner holes with a small, round-headed brass escutcheon pin (nail). Set the pins in the pilot holes in the wood and carefully drive them in. I suggest using a vise or a piece of dowel in a drill press rather than a hammer to avoid damage to the plastic. Attach the information plates with double-sided tape or super glue. Clean off any smudges or fingerprints, put the plaques in a safe place and you are done.

All that's left to do is to award them to the lucky winners. Knowing that these are handmade will mean more to them than the usual trophy shop awards, plus they can put a photograph of their own model in place of the one on the plaque. Give these awards a try for your next club competition—I think you'll find the results are well worth the work •

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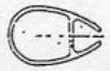

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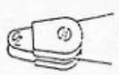

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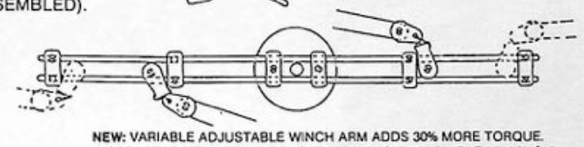

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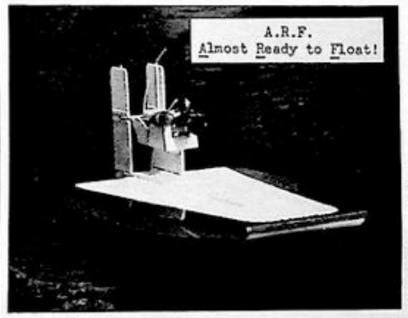

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CONSTRUCTION

BY GRAHAM GOODCHILD

HAPPY HARRY

"Happy Harry" powers and steers this little, 11-inch long rowboat, using a sculling motion. One radio control servo does it all.

Here is a little project that can be built for a minimal outlay and requires just one servo to provide both propulsion and steering. The 11-inch long model represents a typical small rowing dinghy and is propelled by a pivoting sculling figure (based on a commercially made toy) holding an oar, attached to which is a flexible vane to provide the necessary thrust, similar to a fish tail movement. By oscillating the transmitter stick about its central position or favoring either side, the figure, coupled to the servo will propel the dinghy along in any desired direction.

Plastic card was chosen for the building material as the model is small enough to be constructed from standard foolscap size or smaller sheets. However, the main advantage of using plastic card is that it is waterproof and does not require preparation before painting, therefore building time is kept to a minimum.

For those of you who have never tried this material, before starting the project, practice cutting out one or two small pieces and joining them together. Cut the thinner sheets with one or two strokes of a knife and bend along the cut line, the part required will then just snap out. A razor saw is used for cutting through thicker sheets. Solvent usually supplied with a brush applicator in the lid is applied along the joints which fuses the parts together. To be brief, the following construction sequence merely refers to the parts as being cemented together, but in fact, solvent is used.

MATERIALS

Two 8-1/2x11 sheets of 1/16-inch plastic card.
Two 8-1/2x11 sheets of 1/32-inch plastic card.
Two lengths 1mm plastic rod.
One length 1/8-inch spruce dowel.
One length 16 ga. piano wire and fitting brass tube.
One ball and socket clevis.
One normal screw type clevis.
One nylon crank.
One collar.
Scrap brass sheet and wire, plastic drafting film, figure and single function radio control.

CONSTRUCTION SEQUENCE

1. Trace and cut out the deck and parts A to D from 1/16-inch plastic card including the figure access hatch on the port side of the seat/deck.

2. Two laminations of keel D are required, which are cemented together and faired in with a file when set.

3. Mark the positions of frames B and C on the keel. Lay the seat/deck on a flat surface with the underside uppermost and position the frames with the keel slotted in place. Hold the frames in place with weights and cement together with the keel.

4. Mark the position of the seat/deck on transom A and cement to the keel and deck, checking that the rear edge of the deck is straight.

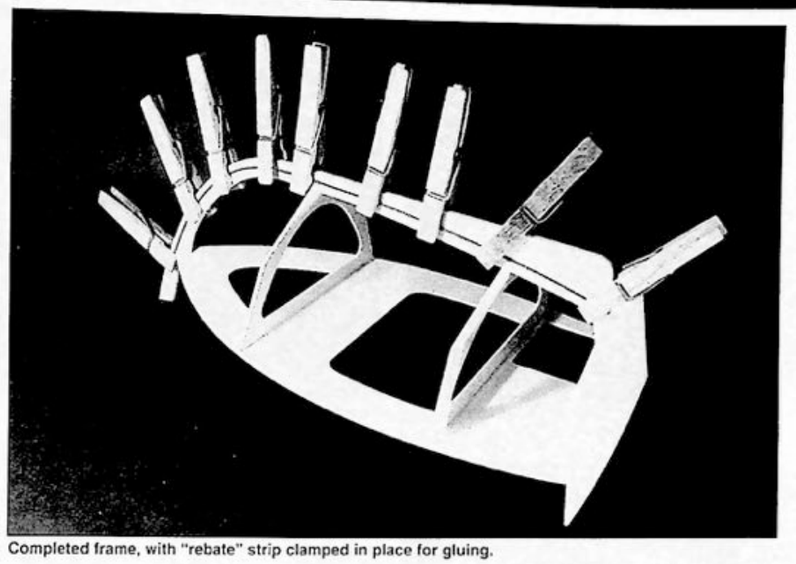
5. Mark the position of the hull skin rebate along each side of the keel. Cut the rebate strips from 1mm plastic rod and hold in place with clamps and cement.

6. Trace and cut out the hull bottom and side templates from stiff paper and trim to fit over the frame. First cut out the sides from 1/32-inch plastic card traced from the template. Bevel the bow section where they fit against the stem and cement along the deck, transom, and frame B only. Repeat for the hull bottom. The chine seam between the stem and frame C is butt jointed, while the remaining bottom slightly overlaps the sides. Cement the bow sections first and work aft cementing along inside the chine seams. Leave to set then trim edges and file smooth the chine seams.

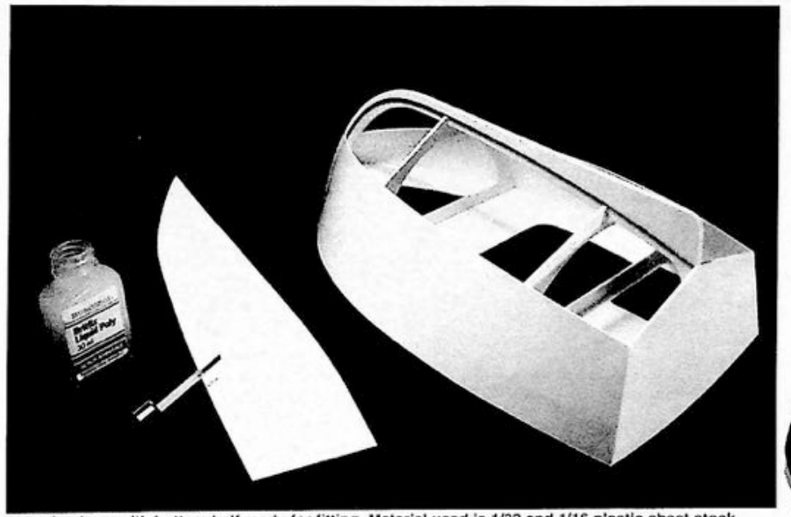
7. Cut the gunwale strips from four lengths of 3/16-inch wide 1/16-inch plastic card shaped to a D section. Cut to fit between the stem and transom and clamp a strip on each side of the hull top sides, and cement between the clamps.

8. Trace and cut out the six seat and two transom knees, including the stem knee E, F, G, from 1/16-inch plastic card, smooth around inside curved edges and cement in place.

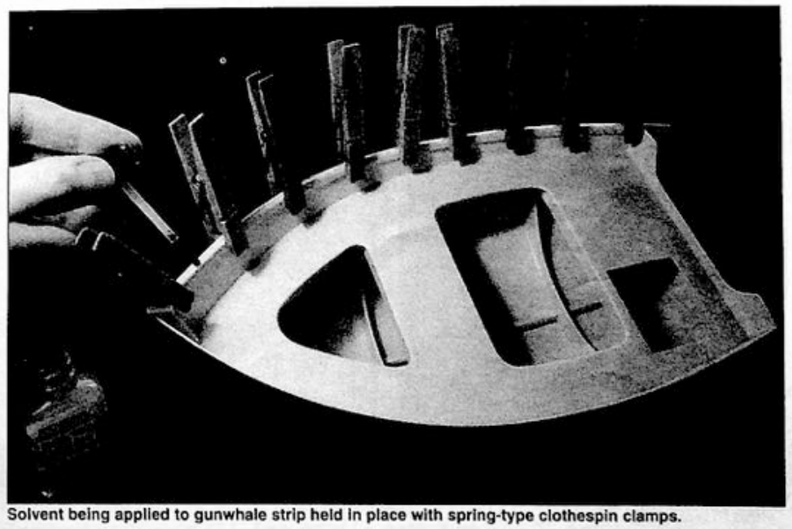
9. Cut the rowlock pads from 1/16-



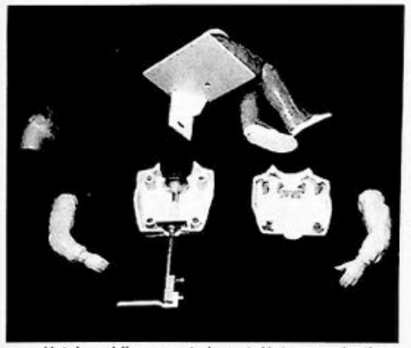
Completed frame, with "rebate" strip clamped in place for gluing.



Sides in place, with bottom half ready for fitting. Material used is 1/32 and 1/16 plastic sheet stock, "welded" together with solvent.



Solvent being applied to gunwhale strip held in place with spring-type clothespin clamps.



Hatch and figure parts layout. Note new plastic sheet mountings in body.

"Happy Harry" takes off downstream. Oar has extra paddle area for better propulsion.

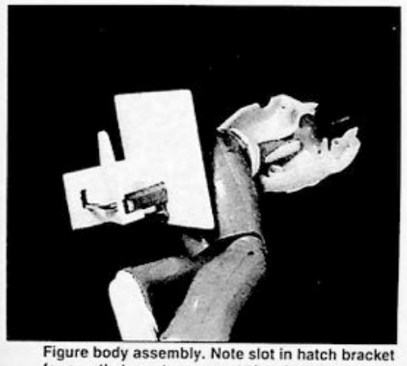
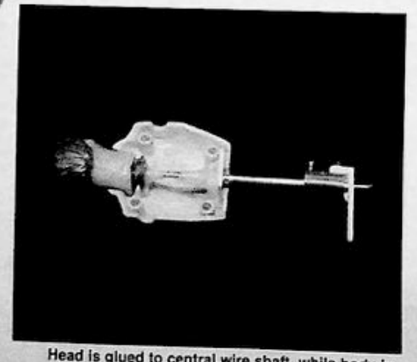


Figure body assembly. Note slot in hatch bracket for arm that creates separate head movement as body swivels while sculling.

Isolated photo showing body-to-servo linkage. Wire arm in slot keeps head aimed forward with only small movement.



Head is glued to central wire shaft, while body is glued to outer tube.

inch plastic card; shape and cement to the inner gunwales where shown. Cut the rowlocks from brass strip—shape around a piece of dowel or screwdriver and solder on the shanks cut from brass wire. Glue into pre-drilled holes in the pads after the hull is painted.

10. Finally, smooth around all hull corners and seat edges with fine glass paper. Cement a plastic card disc in each corner underside of the hatch opening in the aft seat for the hatch to seat into, together with two additional strips cemented to the top rear edge only to retain the hatch in position when closed.

THE FIGURE

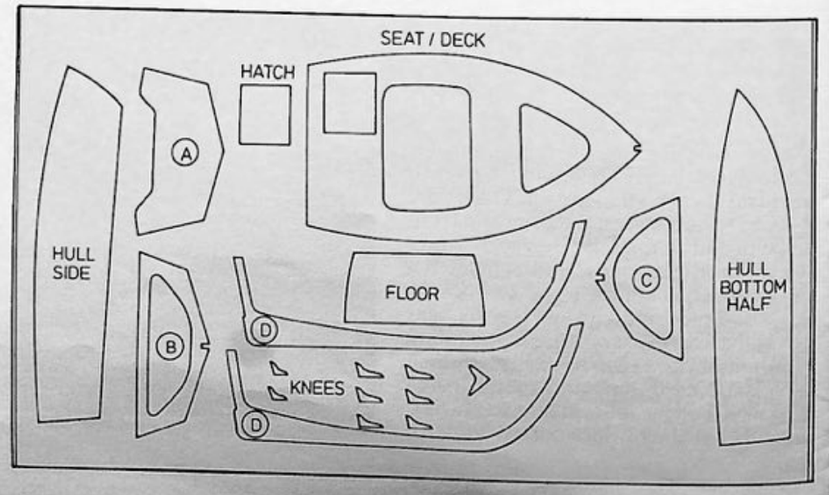
Most good toy shops and stores stock articulated figures of characters from TV and films which can be suitably adapted. The main requirements are that the figure should be around six inches tall and be fully articulated where possible.

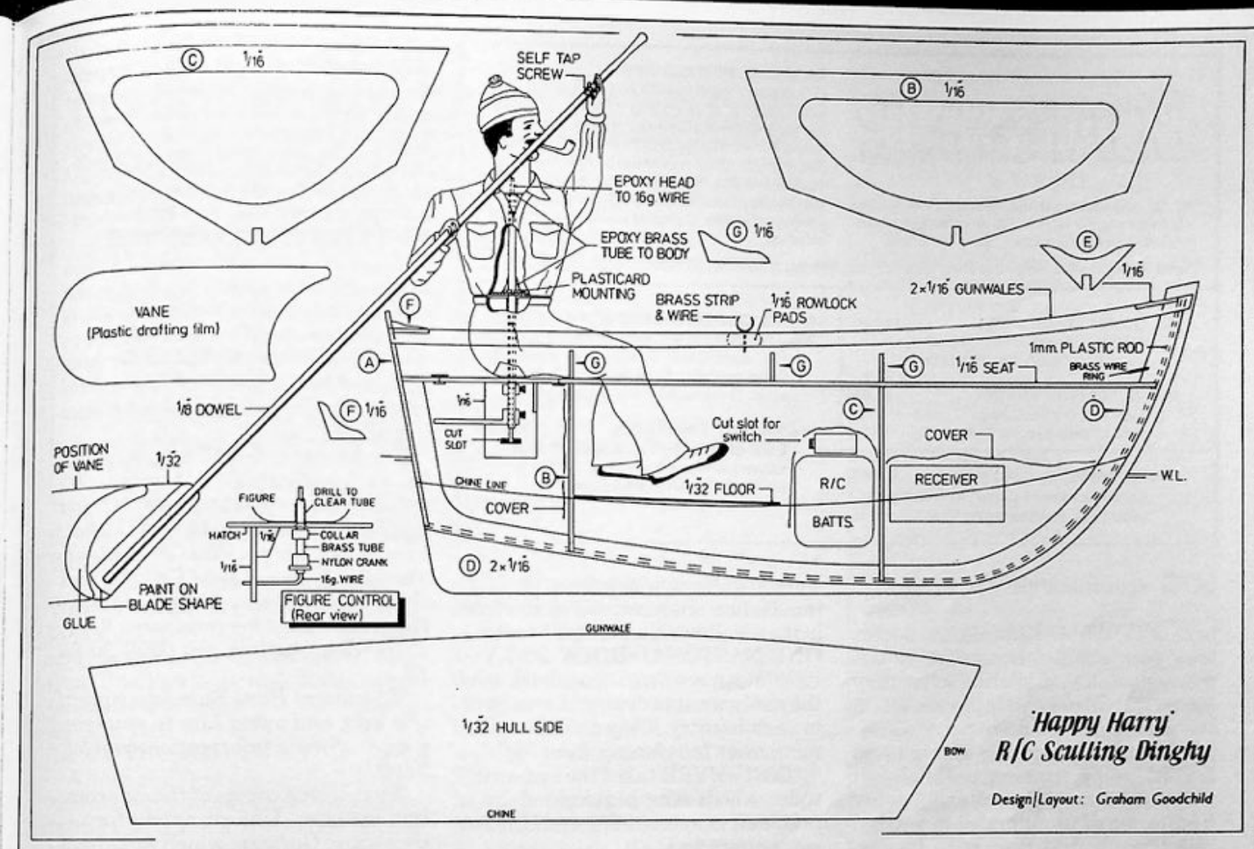
The first job to be done once a suitable figure has been selected is to remove the arms, legs and head from the body *(Sounds like a typical "family" TV show! wcn)*. Usually the body is molded in two halves, so when pried apart with a knife, the arms, legs and head will just fall away. The head will probably be hollow and so this must be filled in with plastic filler to provide a rigid mounting point for attaching to the central support wire. Only the body, together with the arms, are required to pivot and therefore it will be necessary to modify the existing joints with pieces of plastic card to support the brass pivot tube.

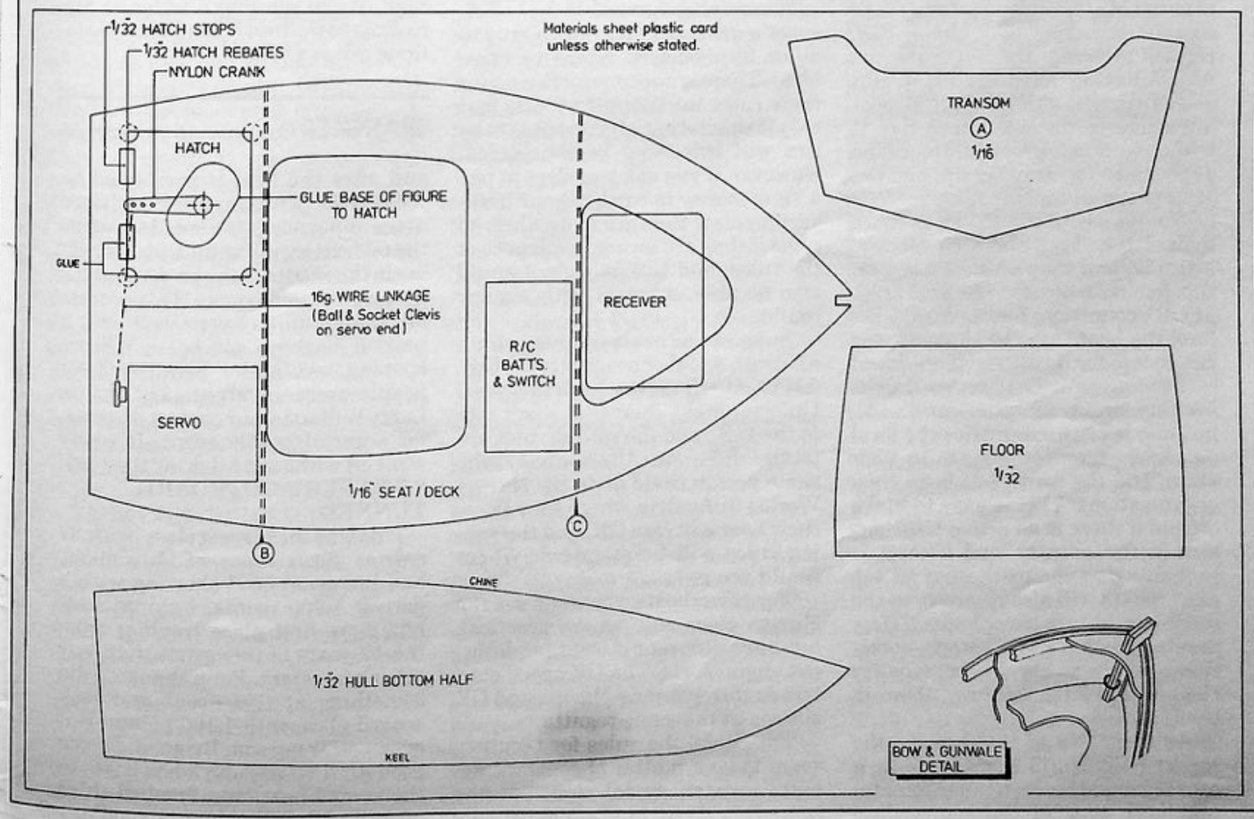
Cut to length the pivot tube and epoxy through pre-drilled holes in the modified mountings as shown with the lower end of the tube passing through a pre-drilled clearance hole in the trunk of the figure with the legs set in a seated position. Then 16 ga. piano wire is passed through the tube and into the head, while the lower end is bent at right angles and located in a slot cut in a plastic card support bracket, cut and cemented to the underside of the hatch as shown. The idea of the slot is so that the head will have limited movement when the body is pivoted.

Cement the body together and if necessary, file the inside of the collar to prevent the head binding. Set and cement the arms to the correct position while the figure is temporarily seated with a length of dowel in his

continued on page 63







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LOG *Continued from page 53*

bers of IYRU-MYRD national bodies too happy about this, and in the UK many modelers don't like what they see as the future, with the accent on the racing, not modeling.

"Up to five years ago Naviga and IMYRU were running parallel, but without contact. But after pressure from some of us, who sail in several countries, a first project to harmonize the M class rule was brought to completion. Now only the U.S.A. refuses to accept the new rule, the AMYA having voted against it. But elsewhere you can take an M boat anywhere in the world and race it without any rule problem. Hence the 1988 joint Worlds in Berlin, and the 1992 proposal for Hungary.

"Naviga's attitude to sail is more toward the `keep them as Models' attitude, and they are less keen on the hot rule observance in IYRU-MYRD countries, but as I said before, the boats are the same, so one can choose the regatta style one likes!

"Power Boats. The Naviga classes are very largely accepted world wide, but in one or two countries the local national organizations are in poor state, and the result has been rival organizations. This is easy to make official if there is an active UIM section in the country, and if so, it is probable that the mechanics for top powerboats will also be active in the model world, on a lower budget! Hey, presto, you have two camps, sometimes made worse by personality clashes. I'm sure you have them in the U.S. too!

"As a matter of interest, at the recent UIM World event in Italy, a country noted for its temperamental problems, 85% of the competitors were also Naviga members through the Italian Federation, so it could just as well been a Naviga event.

ONE NATIONAL BODY ONLY

"You can see from the above why they only want to deal with one Body in each country. They don't have the manpower to referee a local fight!

"IYRU-MYRD takes the same attitude, which was highlighted by a problem between AMYA and USRAA some years ago.

"It is a crying shame that the U.S.A. is not a member of Naviga, if only to allow its modelers access to more ideas. There is no compunction to use their rules in national events, and only if an international event is to be run will this need be considered. However, if you ask modelers to pay a lot of money to come to your backyard to play, they are more likely to come if they are aware in advance of the rules, and U.S. modelers would also be able to travel with similar confidence.

"Suppose one has been invited from a Naviga-member country to the U.S. AMYA ACCR in New York this year. Unfortunately, their boat won't rate in the U.S., and the sailing rules are totally different. Alternatively, the same person could go to the Naviga Worlds in Austria where they know their boat will rate OK, and the sailing rules will be standard. Where would you go?

"For powerboats, you could use the Naviga class rule where practical, but have different classes for different engines, etc. The UK speed electric do this, running Naviga and UK classes at the same regatta.

"For Scale, the rules for accuracy seem to be a matter of constant debate, in each model club, but the courses laid out in the Naviga rule book for steering and other competition sailing have been developed over many years and it seems to me you might just as well use them as invent new ones. After all, if your lake won't take the full size course, you can always shorten one bit of it.

MY PERSONAL POSITION

"I am only a member of Naviga inasmuch as my local club, a multi interest club, power, scale and sail, is affiliated to the MYA and MPBA in the UK, and the MPBA is in turn affiliated to Naviga. I hold no official position in Naviga. I just think it does a good job!

"I hope this info will help towards an understanding of Naviga. Its present main officials are all top people, viz; President: Herr A Dockal, Czechoslovakia; Vice President: Stuart Robinson, Great Britain, and General Secretary: Mag Arch Ing. Hans Kukula, Angererstrasse 8/11, 1210 Wien, Austria, tel; 0222 30 85 75.

"I have sent Hans Kukula a copy of this info, and asked him to send you a copy of their information booklet, 2/90."

We received copies of the information booklets. Unfortunately for us, they are in German, which we cannot read. We're sending a letter to Mr. Kukula to find out if English translations are available. •

SPANGLER *Continued from page 55*

and after the heat is completed he records the points on the score board at the announcer's trailer. Meanwhile the pit boss handling pit B was checking in the entries at the on-deck area... getting everyone ready. This process alternated all day very well with a pair of back-up pit bosses. Score keeping was easier because fewer people were involved. Thanks to Larry Williams, our contest director, for organizing this event. It really went off without a hitch, as they say.

3.5 EXPERT OUTBOARD TUNNEL

This was the biggest class, with 32 entries. Scott Jones, of Milwaukee, had his usual good showing with a perfect 1,200 points. I think Scott has more first place trophies from the 12 years of this event than any other contestant. For a change, I did something at this event and took second place with 1,100 points. But even better my son, Brian, did some good driving, passing a few boats in the second heat, and finished third overall with 975 points. A good day for Barracuda boats! Where's Tim Wenzel??

We had contestants from Illinois, Wisconsin, Indiana, and Brazil... Well kinda, anyway, as Roberto Martins and his wife, Maria, just moved here from Sao Paulo, Brazil. Roberto entered his 3.5 Tom's Cat. Welcome to the IMPBA.

7.5 OUTBOARD TUNNEL

A field of 27 entries in the 7.5 class battled it out all day long. After three rounds of racing only 100 points separated Greg Johnson, of Palatine, Illinois, Scott Jones, of Milwaukee (each with a perfect 1200 points), and Matt Fuschen, of Elmhurst, Illinois, with 1100 points. As Scott and Greg had not faced each other all day what better way to settle first place than a runoff? It was an exciting race, won by Greg.

CONCOURS VOTING

A few of the fellows from a local airplane club judged the boats for the best looking tunnel. All of the boats were lined up after the first round of racing and judged. The spectators crowded around to get a good look and a photo at the same time. At the end of racing the Concours Awards were as follows:

1st place Clay Skebba
2nd place John Lutz
3rd place Jennifer Hottenstein.

RACE CONTRIBUTORS

Before we conclude let's not forget to mention the manufacturers and others who contributed to our race. Special thanks goes to the A.G.C.R.C.C. (Association of Greater Chicago R/C Clubs) for their support and for donating the trophies for the event. Thank you to *U.S. Boat and Ship Modeler* magazine for their support of the novice class and the donation of the perpetual trophy won this year by Brian Sauermann. The Minute Breakers thank all contributors!

A.G.C.R.C.C., Al's Hobby Shop, Air Age Publications, Airtronics, Altech Marketing, Badger, Carstens Publications, Coverite, Dubros, Dumas, Dynaflite, Futaba, G & M Models, Great Planes, Global Hobbies, Hayes Products, Hobby Dynamics, Hobby Lobby, Horizon, K & B Manufacturing, McCoy, McDaniel R/C, Midwest Products, M.R.P., National Mag. Mailers, Northeast Screen, Octura Models, Parma, Pettit Paint, Prather, Pro Edge Tools, RAM, R/C Modeler Magazine, Robart, Robbe, Satellite City, Sullivan Products, Top Elite Models, U.S. Boat & Ship Modeler Magazine.

FINAL STANDINGS

3.5 Novice Outboard Tunnel
1. Brian Sauermann
2. Dale Bakalar
3. Bill Schenk

3.5 Expert Outboard Tunnel
1. Scott Jones
2. Bob Preusse
3. Brian Preusse

7.5 Outboard Tunnel
1. Greg Johnson
2. Scott Jones
3. Matt Fuchsen •

HARRY *Continued from page 60*

hands to check that he pivots without the dowel fouling the transom. Fill in the leg and arm joints with plastic filler and file to shape.

The figure can now be painted and your own individual features added before final assembly. For example, a wool hat can be made from a sleeve cut from a discarded doll's dress, pinched and held at the top with a bobble cut from a narrow strip of the same material—rolled up and glued in place. The pipe shown on the prototype figure was cut from plastic rod—bent and shaped, and pushed through a pre-drilled hole in the side of the mouth.

OARS

Cut the two oars from 1/8-inch dowel, noting the propelling oar is longer. Trace and cut the blades from 1/32-inch plastic card—bend and glue into pre-cut slots in the end of each oar shaft. The larger propelling blade fits into the longer shaft. Glue to this blade the propelling vane which is traced and cut out from plastic drafting film. Shape the handles and paint after first sealing the dowel with cellulose dope. Show the leather

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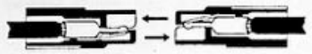

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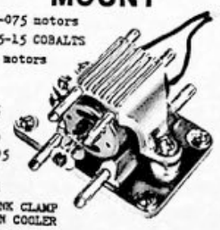

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rubbing strips in a contrasting tan color.

PAINTING THE HULL

Lightly rub down all surfaces to provide a grip for painting on and wash in detergent to remove any traces of grease. It is suggested that enamel paint is used. Two coats will probably be necessary if a light color is selected for the hull, to achieve an even coverage. Dark brown was used for the seat/deck, and brushed on in such a way as to obtain a streaky effect to simulate wood grain.

Finally, a length of synthetic woven cord provides the fender which is contact glued along the bottom edge of the outer gunwale strip.

FITTING OUT

Drill a hole in the seat hatch for the figure pivot tube to pass through and glue the figure to the hatch. Screw a nylon crank to the base of the tube and insert the central 16 ga. piano wire shaft through the tube and glue into the head. The cranked bottom end of the shaft should slip into the slot by carefully bending back the support bracket.

Cut off three of the arms on a standard servo control horn and screw on a ball and socket type clevis to the remaining arm. Fasten the servo with double-stick foam tape to the underside of the seat with the control horn facing the transom and connect with 16 ga. piano wire to a screw-on type clevis on the figure control crank. The figure assembly can now be slotted into the seat opening.

Mount the R/C switch with tape on top of the battery holder and fasten with Blu-tack (similar to Walther's "Goo") to the hull bottom under the center seat. The receiver just slips into the bow section and is covered over with a piece of fabric or plastic sheet, which should also lay across the inside face of the rear seat and over the batteries with a slot cut out for access to the switch. Trace and cut out the floor from 1/32-inch plastic card and suitably paint. This slips in between the chines to cover the servo lead and antenna wire.

Fasten the propelling oar into one of the figure's hands with a self-tap screw. At least one hand on most figures is already clenched to hold items, so this is ideal for gripping one end of the oar. Either hand can be reset for holding by cutting off and cementing in the new position.

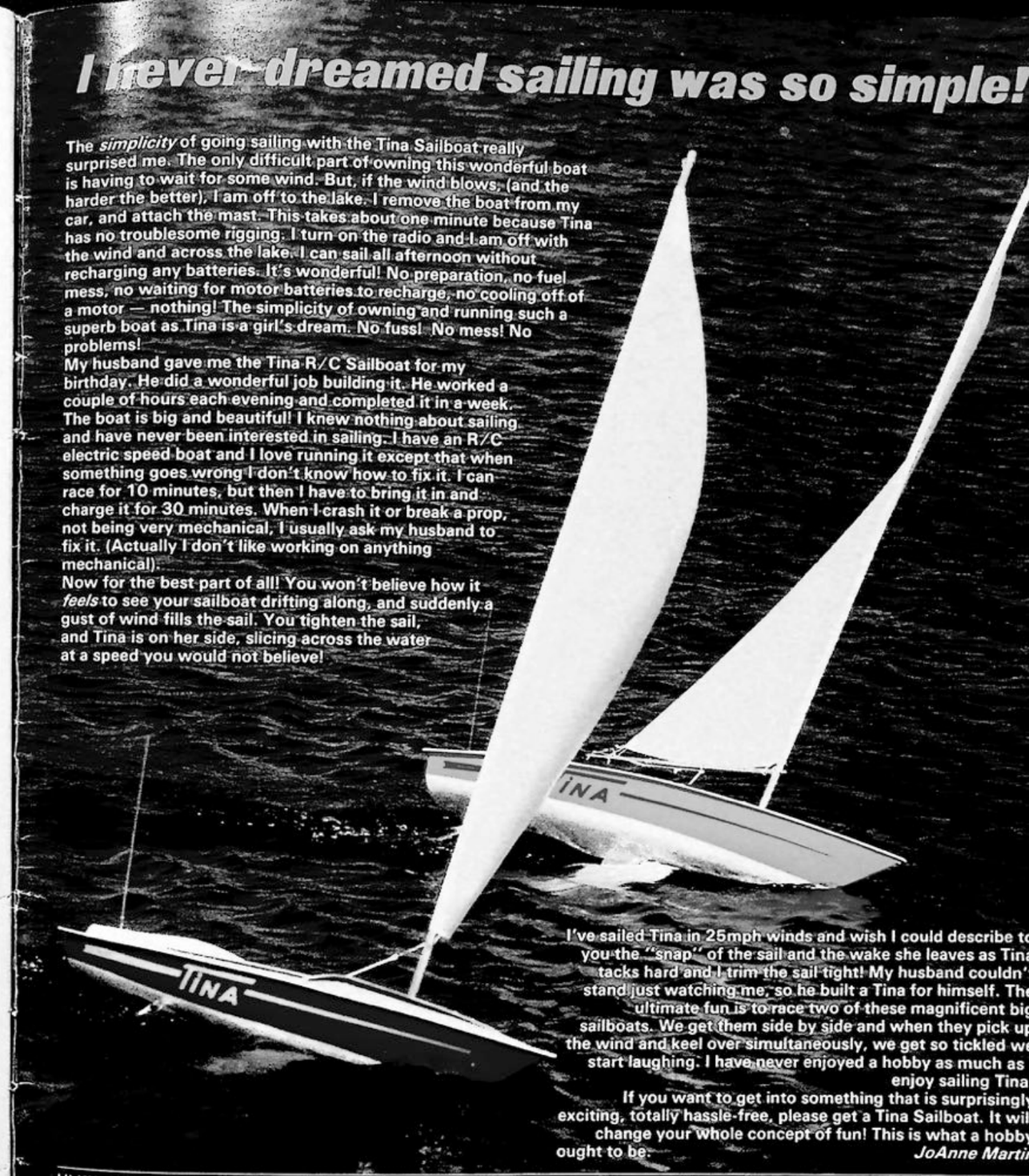
In operation, only quite small movements of the transmitter stick are required to get "Happy Harry" sculling and is sure to provide amusement for you and onlookers wherever he's in action. •

I never dreamed sailing was so simple!

The *simplicity* of going sailing with the Tina Sailboat really surprised me. The only difficult part of owning this wonderful boat is having to wait for some wind. But, if the wind blows, (and the harder the better), I am off to the lake. I remove the boat from my car, and attach the mast. This takes about one minute because Tina has no troublesome rigging. I turn on the radio and I am off with the wind and across the lake. I can sail all afternoon without recharging any batteries. It's wonderful! No preparation, no fuel mess, no waiting for motor batteries to recharge, no cooling off of a motor — nothing! The simplicity of owning and running such a superb boat as Tina is a girl's dream. No fuss! No mess! No problems!

My husband gave me the Tina R/C Sailboat for my birthday. He did a wonderful job building it. He worked a couple of hours each evening and completed it in a week. The boat is big and beautiful! I knew nothing about sailing and have never been interested in sailing. I have an R/C electric speed boat and I love running it except that when something goes wrong I don't know how to fix it. I can race for 10 minutes, but then I have to bring it in and charge it for 30 minutes. When I crash it or break a prop, not being very mechanical, I usually ask my husband to fix it. (Actually I don't like working on anything mechanical).

Now for the best part of all! You won't believe how it *feels* to see your sailboat drifting along, and suddenly a gust of wind fills the sail. You tighten the sail, and Tina is on her side, slicing across the water at a speed you would not believe!



I've sailed Tina in 25mph winds and wish I could describe to you the "snap" of the sail and the wake she leaves as Tina tacks hard and I trim the sail tight! My husband couldn't stand just watching me, so he built a Tina for himself. The ultimate fun is to race two of these magnificent big sailboats. We get them side by side and when they pick up the wind and keel over simultaneously, we get so tickled we start laughing. I have never enjoyed a hobby as much as enjoy sailing Tina.

If you want to get into something that is surprisingly exciting, totally hassle-free, please get a Tina Sailboat. It will change your whole concept of fun! This is what a hobby ought to be.

JoAnne Martin

HLKK1423 Hobby Lobby/Klaus Krick
Tina RC Sailboat ***$126.00***
List price $198.00

36" long, 11" beam, 62" height overall. Kit contains durable preformed ABS parts, aluminum and brass "no-rigging" mast and boom, heavy weighted keel (ballast is included) and ready-cut waterproof sail. Illustrated instructions are simple and we have added a radio installation instruction based on our own experience with the boat.

Tina can be sailed with rudder-only control but sails much better with added sail control servo. Our Accessory Packs for Tina contain everything you will need (including sail control servo) to complete the boat except for 2-channel radio system. Order Accessory Packs: HLKK1424 for Heavy Wind, or HLKK1425 for Light Wind. (call for price).

5614 Franklin Pike Circle • Brentwood, TN 37027 • (615) 373-1444 HOBBY LOBBY

100 FEET IN 5.3 SECONDS

MRC'S NORDIC DEEP VEE TURBO R/C BOAT

We challenge any other single motor deep vee to make that statement.

We didn't go to the drawing boards to engineer just another hot boat. We wanted to design a screamer. And we did.

In fact, we built this boat unlike any other. For instance, while many others use plastic gears, our transmission consists of two brass gears with helical cut teeth. This means maximum power transfer, smoothness and reliability. And instead of standard 540 motors, the MRC Nordic is powered by a specially designed, hot-wind wet magnet 540 with a balanced and skewed armature for high, vibration-free power. Others talk speed, but this baby's deep vee hull design lets it fly even under choppy conditions.

Performance differences...

You think all drive shafts are the same? Well guess again! Ours is a hardened stainless steel drive shaft for maximum reliability and corrosion-free operation. And instead of a step speed control, the Nordic uses a variable forward and reverse mechanical speed control with reverse speed limiting.

We challenge anyone to show us a production boat that can turn as sharply as the Nordic... and it does it without any trim tabs or additional hardware, which others may need. How does it look? Great! Lots of chrome-like fittings and handsome bright decals.

Assembly...we made it easy...

Take the hull for instance. Normally a difficult task, we pre-assembled it at the factory and the speed control has already been prewired and needs only to be mounted in the boat. Together with our 16-page instruction manual you'll be out and running in no time.

See the MRC Nordic at your hobby shop and challenge the world.

For maximum safety and performance, please read and follow directions carefully.

MRC™

Model Rectifier Corporation
200 Carter Drive, Edison, NJ 08817